e Iron

A Review of the Hardware, Iron and Metal Trades.

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for the open-hearth fur-nace. During two years, nearly all, and lately, all the open-hearth steel produced in those works has been made from about 5 tons of washed pig and 2 tons of scrap per open-hearth furnace heat. There are 12 open-hearth furnaces, of which four to nine are running, according to the state of orders. A the state of orders. A large amount of highly phosphoric iron from France and Belgium has been also washed and then puddled for parties who have taken, or are expected to take, licenses. The washing fair for parties have been also washing the proposition have taken. of pig for puddling, how-ever, is not a practice at Krupp's works, because pure pigs are nearly as

cheap as impure ones.

The author and his assistant, Mr. Laureau, spent, during the last month, three days at month, three days at Krupp's works, exam-ining this process. They copied out of the office books many character-istic analyses and phys-ical tests, some of which are given herewith. They also brought home many samples of pig, cleaned metal, puddle bar and steel, which they saw treated.

As there are no blast furnaces at Essen, the iron is melted in two

have 750 cubic feet capacity, which is about the same as the average regenerator capacity of open-hearth steel furnaces of equal tonnage. The lining is 13 inches thick on the sides and 9 inches on the bottom, thus giving a hearth 9 feet 10 inches by 2 feet 3 inches deep. The lining is composed of lumps of highly refractory ores roughly fitted together, the interstices being filled with fine ore, and the whole being glazed at a melting temperature. Large lumps are placed on the sides and smaller lumps on the bottom. When the fine ore has melted and run between the lumps, more fine ore is put on and melted, until the lining becomes monolithic. The hearth is then fettled.

The Fettling.—This averages 20 per cent. on the pig-iron charge, but more is used

on the pig-iron charge, but more is used with irons very high in phosphorus. Iron ore alone has been used; also hammer scale alone; usually iron with a little hammer scale is employed. The charges run out very clean and hot. After each heat the gas is turned off for five minutes while the tap-hole is turned on the high side and redressed. The bottom sides, or lower part of the slopes of the hearth, which have been are then ore alone has been used : also hammer scale of the slopes of the hearth, which have been most eaten out during the process, are then filled with fettling ore wet up with just enough water to make it stick together, so that it can be readily handled and so that it will not blow over into the regenerators. A long-handled, large, shallow spoon is placed across a bar in the charging door. One workman shovels the fettling into the spoon; another throws it out of the spoon against the slope. After each two or three spoonfuls, the hearth is revolved a little, so that the fettling is always conveniently dropped in the same place relatively to the door. This operation occupies 16 to 20 minutes.

The fettling should contain a mininum of silica (6 per cent.) and a maximum (15 per cent.) If the silica exceeds 15 per cent., or if the silicon in the pig exceeds 1 per cent., it is best to add as much lime as there is silica in the ore (a little lime is always useful); if the silica is less than 6 per cent., the fettling will not adhere.

The maximum temperature, which is above high puddling heat, but considerably lower than open-hearth steel heat, is kept up between, as well as during, the opera-tions; this temperature slightly melts the surface of the fettling, and sometimes melts furrows 2 or 3 inches deep in the less re-

f The analyses of these samples are not yet ompleted.

Washing Phosphoric Pig Iron for the Open-Hearth and Puddling Processes, at Krupp's Works, Essen.*

BY A. L. HOLLEY, C. E., I.L. D.

This process is performed in the Pernot Duddling-furnace; it removes from 75 to 80 per cent. of the phosphorus, and practically all the silicon, from crude iron, in from 5 to 8 minutes. It has been in regular use since March, 1877, and has produced over 17,000 to 80 minutes. It has been in regular use since March, 1877, and has produced over 17,000 to 80 minutes. It has been in regular use since March, 1877, and has produced over 17,000 to 80 minutes. It has been in regular use since which conducts is reduced to 0.00 to 10 minutes. The South of the open-hearth furnace spout 12 feet long lending for the open-hearth furnace spout 12 feet long lending for the open-hearth furnace spout 12 feet long lending for the open-hearth furnace spout 12 feet long lending and out of its pit by special season of successes, at the conduction of 23 to 29 per cent.

For puddling, the highest known amount for puddling, the highest known amount of the long store of 25 to 30 tons, and an elongation of 23 to 29 per cent.

For puddling, the highest known amount of the phosphorus in the pig, say 3 per cent. The United States Test and number as the peration, but the bubbles are much larger, and increase more and more in size and number as the operation, but the bubbles are much larger, and increase more and more in size and number as the operation, but the bubbles are much larger, and increase more and more in size and number as the operation, but the bubbles are much larger, and increase more and more in size and number as the operation, but the thoughest into a specific section of the operation, but the bubbles are much larger, and increase more and more in size and number as the operation is indivision seems a little more sluggish than at the ebulli-tone seems a little more sluggish than at these obout on the process. The specific section of the operation is indivision seems a little more sluggish than at

raised out of its pit by a locomotive crane, which also transports it to the open-hearth fur-nace. The metal may hace. The metal may be held in the ladle 20 minutes without percep-tible chilling. The pig bed for re-ceiving washed iron for

puddling begins 20 feet from the furance tap-hole. The slag that runs out with the metal is partly stopped by a skimmer and partly run
off the end of the sow.
When the metal is all
out, a section of the
spout is moved laterally to run the slag into a pit, or the furnace tap-hole may be moved laterally, to run it on the floor.

These arrangements are obviously not so convenient as they could be made in a new plant. The washed iron should also be kept fluid for puddling as well as for the open hearth; in these the open hearth; in these works it is remelted in a cupola, as the puddling plant is a long way off.

Output of the Refining Furnace.—The operation and the repairing and heating (¾ hour) of the new fettling occupy altogether, on a averaging and heating (¾ hour) of the new fettling occupy altogether, on a average, 11/4 hours, so that nine 5 to 7 ton heats may be made per turn. The regular output is 80

ture, but is worth about 40 cents per ton to silver and lead smelters.

silver and lead smelters.

The Open-Hearth Process.—The open-hearth charge usually consists of 5 to 5½ tons of washed pig and 2 to 2½ tons of scrap, not preheated. With this charge, a half ton of ore is used in the open-hearth furnace; but, with a 7 to 8-ton charge of washed pig, without scrap, one ton of ore would be used. Some 8-ton heats, with 3 tons of scrap, were observed. The time of making a 7-ton open-hearth heat, as observed, averaged seven hours, and the time of repairing the furnace between was about one hour. The increased output by using washed pig in the proportion mentioned, as compared with the old pig and scrap process, is about one ton per furnace per shift. The waste of iron is also considerably decreased by reason of the also considerably decreased by reason of the low silicon. The principal products are tires, axes, plates and forgings. *

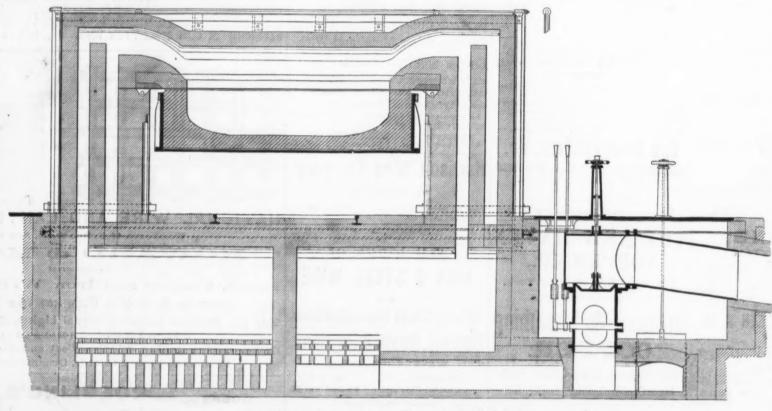
Cost.—At Krupp's works, the washing process costs about as follows per ton of open-hearth steel: Mixture of iron, \$12; cupola melting, 85c.; washing, including open-hearth steel: Mixture of iron, \$12; cupola melting, 85c.; washing, including fettling, repairs, fuel, labor, &c., \$1.25=say \$14. Bessemer pig, however, costs but about \$15.25, so that only \$1.25 profit is realized. Members can readily apply these figures to different conditions in various parts of the United States. Cupola melting is, of course, unnecessary if blast furnaces are near

The men employed at the washing furnace are one melter, one helper, and two or three laborers who wheel ore and slag; also pig-bed men if blast furnace metal is not used direct. The steel furnace laborers get the metal from the washer to the steel furnace. The washing process is without value to the Bessemer manufacture, which depends upon silicon for its converting heat. Repeated experiments in blowing washed metal in a gas-heated converter have been unsuc-cessful.

cessful.

Repairs of Washing Furnace.—The hearth is generally, but not always, pulled out Saturday night to repair the lining by means of lumps of refractory ores. The lining is usually kept good by the daily fettling. The roof ally kept good by the daily fettling. The roof lasts from six to nine months, excepting the parts around the ports, which last from five to seyen weeks. The regenerators must be cleaned every two months.

Experiments at St. Chamond.—The author learned at these works, as well as at Essen,



THE PERNOT WASHING FURNACE. - Fig. 1.-Longitudinal Section

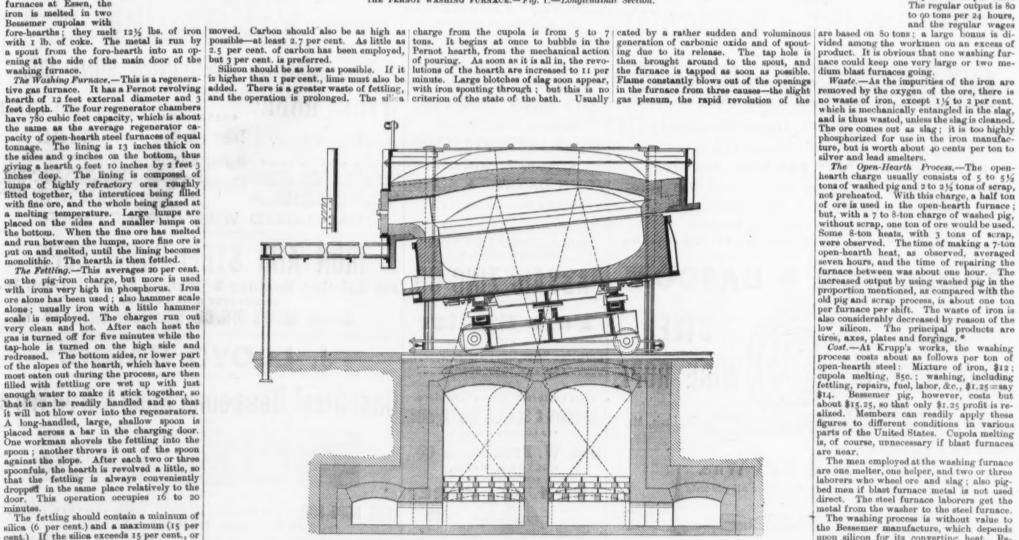


Fig. 2.-Cross Section.

in the slag must be less than 20 per cent.; if in 2½ or 3 minutes from the time the iron begins to run into the furnace, the bath rises and the slag flows more or less out of the iron.

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For steel, the pig iron used averages 0.70 to 0.80 in phosphorus; this element, after washing, is reduced to 0.10 to 0.15, and may be still further diluted by pure scrap. Silicon and manganese are reduced to traces. Table I, page 3, gives an average result. A large amount of Fluss-eisen is made, containing phosphorus, 0.15 to 0.20; but the carbon is about 0.08 and the silicon very low. This metal has an elastic limit of 15 to 18 tons, and the silicon very low. This metal has an elastic limit of 15 to 18 tons, and the revolving hearth and the roof, is decreased. Rich fettling, of course, shortens the time. The tapping, from stopping the rotation of the hearth to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the tap, averaged 2 minutes, and the tap from stopping the rotation of the hearth to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the tap, averaged 2 minutes, and the time from stopping the polarity to opening the tap, averaged 2 minutes, and the time from stopping the polarity to opening the tap, averaged 2 minutes, and the time from stopping the polarity to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the polarity to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the polarity to opening the tap, averaged 2 minutes, and the time from stopping the rotation of the hearth to opening the polarity to opening the rotation

The time of the washing operations witnessed averaged between 5 and 8 minutes. Rich fettling, of course, shortens the time.

A paper read at the Montreal Meeting of the American Institute of Mining Engineers, Wednes-day, Sept. 17, 1879.

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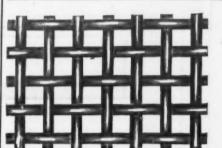
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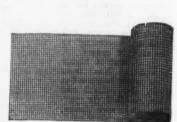
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the results of these experiments (July, 1879), upon which a Krupp license has been taken by the St. Chamond Company. About a dozen charges of Moselle pig, containing phos. I.90, were washed in a Pernot steel furnace, with ore lining, and yielded phos. 0.39 to 0.40. Charges of cold-washed pigs 60 to 65 per cent., and hot scrap 40 to 35 per cent., were made into steel in four hours. per cent., were made into steel in four hours in a Pernot furnace. Messrs. Narjes & Bender, therefore, confidently predict an output of 80 to 90 tons of ingots per 24 hours from washed pig, in such Pernot fur-

naces as are erecting in the United States.

Puddling.—The washed pig should be run direct from the washer to the puddling furnace. The arrangements at Krupp's works, however, require that it should be remelted in a cupola. The reason of remelting in a cupola rather than in a puddling former. in a cupola. The reason or remening in a cupola rather than in a puddling furnace will be understood by iron makers. It is difficult to keep the washed metal fluid during gradual decarburization. The metal first melted in the puddling furnace comes first melted in the puddling furnace comes to nature, and incloses some crude metal, thus preventing its conversion. This might be remedied, perhaps, by more mechanical agitation; but in Krupp's practice, premelted metal yields 0.05 to 0.10 phos. in the puddle bar, against 0.15 to 0.50 phos. from metal melted in the puddling furnace. The temporary cupola used has 2 feet internal diameter, and its product runs direct into the puddling furnace through a movable spout; it runs upon a peel held in at the opposite door, so as not to cut the furnace bottom.

bottom.

An ordinary double puddling furnace, with a Bicheroux gas apparatus, is fettled in the ordinary way with iron ore, hammer scale, and a little manganese ore; but the manganese ore is sometimes omitted; then a charge of ½-ton is run in. After 15 minutes rabbling, the iron began to come to nature in the heats observed. In from 29 to 31 minutes the first balls were drawn. The ninth ball was drawn about 8 minutes after the first. The balls were hammered and rolled to puddle bars 4 by ¾ inches, which the first. The balls were hammered and rolled to puddle bars 4 by ¾ inches, which were quite smooth and clean. The washed puddle bars from pig containing from 2.50 to 3 per cent. of phosphorus, were as fibrous, silky and tough as best ordinary puddle bars. The second chargo came out 62 minutes after the first. The author kept track of 11 charges made in this furnace between 8 o'clock a. m. and 5 p. m. The fettling averages about 600 lbs. per ton, and the loss on cleaned iron with this small fettling is about 8 per cent., including cupola loss. The wear of fettling is very small, by reason of the very small amount of silica in the bath. This fact would give the mechanical puddler a great advantage with washed iron. washed iron.

The economy in fuel is also important

washed iron.

The economy in fuel is also important; for example, at Dillingen, the ordinary practice with Strumm pig is 15 charges of 660 lbs. each, with 1800 lbs. of coal, per furnace per 24 hours. The same pig cleaned yielded 20 charges of the same weight with 1186 lbs. of coal, or 66 per cent. of that used with raw pig. The quality of product was the same as that of ½ Strumm and ½ Nassau, the latter being of high quality.

Conclusion.—The proportion of phosphorus eliminated by this process is not so great as by the Thomas and Gilchrist process; the efficiency, however, of lime linings and additions in the open-hearth is yet to be tested. The Krupp washing has little or no value in connection with the Bessemer process. The Siemens direct process also yields a material adapted to the open-hearth, more free, not only from phosphorus, but from carbon, than the Krupp washed metal, and in better condition to be converted rapidly into steel. The object of this paper is, however, not to compare refining processes, but to give the complete facts about the Krupp process; and it must be admitted that this process is cheap, uniform, convenient, and thorougly effective within certain limits, and that it is no longer in any sense experimental. no longer in any sense experimental.

ABLE I .- PHENIX PIG. CLEANED FOR OPEN-HEARTH

	C.	Si.	P.	S.	Mn.	Cu.
		0.39 0.08 0.01 0.033	0.74 0.16 0.146 0.106	0.09 0.024 0.096 0.029		0.14 0.15 0.14 0.14
	Silica.	Oxide of Iron.	Mn. Alumina.	Lime.	Phosph'e acid. Sul. acid.	Copper.
Slag	13.0	51.0	6.6 11.	6 0.7	6.0 0	2 tr
obarra	Steel	turni	g ngs errome	2		Total Lbs. 12,848

		Stee	l Plat	e.			
		Tons	. 1	-		Per	cent.
Tenacity,		25.8	El	onga engthwonga rosswi	rise	-	31%
	-ILSEDE	PEG. C	TERANI	ED WIT	M ILS	EDE	ORE.

TABLE IIILSEDE		UDDL		LYM	TUBE	DE C	J I K III
Silica, Oxide of	Oxide of Mn.	Alumina.	Lime.	Magnesia.	Phos. acide	Carb. acid.	Water.
Cl'g ore 4.80 52.6 Slag 10.40 41.0 * Limit of satur	19.30	2.00	7.30	0.70	20.00		
	C.	1 8	ii.	1	Ρ,	M	n.
Raw Pig Cleaned Pig Puddle bar	2.50		20 (31) Ces.	10.	92 65) 90) c88	Tra.	
TABLE IIILUXE	MBURG	PIG,	CLI	ANE	D FC	OR I	PUD

		Silica. Oxide of	Oxide of Mn.	Alumina.	Lime.	Magnesia.	Phr s. acid	Sulphur.	Water.
Cleaning of Slag		9.5 70. ation (3 2.1 f sl a g	4.1	1.9	0.3	11.5		
	C.	Si.	1	Р.	1 3	dn.		D,	
Raw Pig.	3.40 3.10	0.46 0.59 Trace	10	.09	0	. 18 . 19		0.3	
Cit. a Life				.95	1				

The Imports of Rails and the Revenue Derived from Them

Mr. Joseph Nimmo, Jr., Chief of the Bureau of Statistics, has prepared at the request of some French gentlemen who wish to publish a work on American railroads, the following statement of the quantity of rails of all kinds imported into this country, the rate of duty and the amounts realized

Year	Tons	Rate of Duty.	Amount
ending	(2,240 lbs.)		of Duty
June 30.	entered.		Received.
1862	6, a362 3,7125 16, 1808 104, a294 66, 4550 54,7574 21,5307 140,0601 244,0852 401,8665 395,3880 24,4640 189,3565 395,3880 24,4640 189,3565 31,1560 21,15	\$12 per 2,240 lbs. \$13,50 60 cts per 100 lbs. 70 100 110 110 110 111 .	\$74,834.06 44.550.30 218.440.76 1,407,005.16 923,130.72 90,276.83 89,318.43 90,230.08 1,522,090.37 2.195,147.60 4,528,420.00 6,301,266.20 4,528,420.00 6,301,266.20 353,23,622 6,724,19,18 4(4,0,8)37 12.3 6.05 3,318.67 72,100.65 24,757,12 8,622,67

	8	TEEL HAILS.	
Year ending June 30		Rate of Duty.	Amount of Duty Received.
872 873 \ 874 876 \	. 105,214.3 . 11,407.8 . 128,317.3 . 130,386.0 . 38,170.8 . 1,030.1	Do., less 10 p. c.	\$439,21:.80 729,568.81 2,946,001.16 319,418.73 3,233.596.75 2,285,7-0.20 961.903.82 26,184.77 137,607.05
877	8.9	Do., less to p. c.	224.83

RAILS PARTLY STEEL (STEEL-HEADED).

1871	236.0	a cent	per lb.	\$5,286.62
1872	4,598.2	6.6	4.6	896.91
1873	1,052.0	Do., le	as to p. c.	21,226.18
1874	25 3	66	0.0	511.01
1875	15.3			308.30
1876	16.5	i cent	per lb.	378.71
1877	8.4	64	60	661.38 196.47
1878	10.5	6.6	44	369.30

Experiments with Charcoal, Coke and Anthracite in the Pine Grove Furnace. Pa.*

BY JOHN BIRKINBINE.

In the spring of 1878 the Pine Grove Furnace, located in Cumberland County, Pa., was blown in after lying idle for several years. The furnace was constructed in 1770, and for over a century it has been in almost continual operation. The plant consisted in 1877, when the writer was first called there, of a stone stack 32 feet in hight, inclosing a shaft and boshes, the latter being 9 feet in diameter. The blast was supplied by two wooden blowing tubs discharging into a third, having a floating piston sustaining a box weighted to give the desired pressure, the power being furnished by a water-wheel. A small 18-pipe hot-blast stove heated the blast. The furnace was remodeled during the winter of '77-78, and remodeled during the winter of '77-78, and a Weimer blowing engine with a blowing tub 5 feet in diameter and 2 feet stroke, with the necessary boilers, were substituted for the wooden tubs and water-wheel. The for the wooden tubs and water-wheel. The stack was raised and enlarged, and provided with a bell and hopper having a central drop. Water dam and tymp were added and general repairs were made. The hot oven, however, was not increased. The furnace had always been operated with charcoal as fuel, and its reconstruction was made with a view to continue the use of charcoal, but provision was made for ample

charcoal, but provision was made for ample blowing capacity should other fuels at any time be employed.

Although liberal arrangements had been made in cutting wood, the stock of charcoal supplied in 1878 was insufficient for the increased requirements of the remodeled plant, and notwithstanding the purchase of some 80,000 bushels from an adjacent idle urnace, there was not enough to keep the in constant blast until a new supply could be obtained, particularly as the season was unusually backward. Instead of follow-ing the established precedent of many charcoal furnace managers—i. e., blow out every February—it was determined to continue in February—it was determined to continue in blast, using coke as fuel. Accordingly, when the charcoal stock was exhausted, on March 22d, 1879, Connellsville coke was substituted, the change of fuel being made at once; that is, the coke charges followed immediately upon the last charcoal charges. After working a few days, the strike in the Connellsville coke region cut off the supply, and anthracite coal was obtained. a mixture and anthracite coal was obtained, a mixture of the two fuels being employed. The strike continuing, anthracite alone was used until a short time before a new supply of charcoal could be depended upon, when the coke shipments were resumed and mixed fuels again were charged. It is seldom that the results of the employment of different the results of the employment of different fuels in the same furnace under similar conditions are obtainable, and the following data are presented in hopes that they may appear opportunely for the discussion upon fuels, which has been participated in by Prof. John A. Church, of Columbus, Ohio, and England's metallurgical authority, Mr. I. Lowthian Bell. The employment of other fuels than charcoal in a charcoal iron furnace is not presumed to be novel, and may have been experimented with at a number of furnaces; the only authentic information

furnaces; the only authentic information which has been procured is the following:

In the fall of 1853, anthracite coal was substituted for charcoal by the Messrs. Hunter, in the Moselem Furnace, Berks County, Pennsylvania, and its use continued for about 4 months. The furnace was 8 feet diameter at bosh and 31 feet in hight, with open top; the blast being furnished by "Road at the Montreal meeting of the Ameri-can Institute of Mining Engineers," Fron.

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[See advertisement in The Iron Age of October 2, 1879.] WHEELER & MELICK CO., ALBANY, NEW YORK, U. S. A.,

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water power and heated in a stove. One tuyere was employed with charcoal, but a second tuyere was added when anthracite was used, these tuyeres being placed 22 inches above the bottom. From 35 to 45 tons of iron (mostly foundry) was made perweek, with a consumption of from 2½ to 2½ gross tons of anthracite. The output of the furnace was greater with anthracite than with charcoal, the yield with the latter fuelbeing from 26 to 35 tons per week, but the consumption of fuel per ton of iron was much greater with the anthracite. Mr. Nicholas Hunter, who kindly furnished the above information from memory, also states that 2½water power and heated in a stove formation from memory, also states that 21/4-inch nozzles were used in each case, the tuyere being open when charcoal was used and closed when anthracite was charged. When mak-ing charcoal iron the lime charge was 15 to ing charcoal iron the lime charge was 15 to 20 per cent. of the ore charge; with anthracite this was increased to from 35 to 50 per cent. Unfortunately, the books of record of this furnace are believed to have been destroyed, and data in detail could not be obtained. It is, however, evident that the increased yield with anthracite was made by driving the furnace at the expense of fuel. of fuel.

At the Philadelphia meeting in 1873, Mr. T. F. Witherbee presented a paper before the Institute upon the manufacture of Bessemer pig metal at the Fletcherville Charcoal Furnace, near Mineville, Essex County, N. Y., in which mention is made of the substitution of anthracite for charcoal toward the close of 1871. (See Transactions, vol. ii., page 71 to 75.)

In 1873 Mr. S. M. Krauser changed the fuel in the Port Leyden Furnace, Lewis County, N. Y. The only record of this change which could be obtained is from a letter to the Secretary of the American Iron and Steel Association, viz: "We blew in with charcoal and made 409 tons; then filled At the Philadelphia meeting in 1873, Mr.

and Steel Association, viz: "We blew in with charcoal and made 400 tons; then filled with anthracite coal and made 697 tons; then changed to charcoal again, and we are still blowing."

Col. George B. Weistling, a member of the American Institute of Mining Engineers, had also used coke, but only for a short time, closing out a blast with charcoal at Mont Alto Furnace, Franklin County, Pa. It is to be regretted that full data of these experiments could not be obtained for com-

experiments could not be obtained for comparison with those herewith presented.

The Pine Grove Furnace has a bosh 9 feet 4 inches in diameter and a working hight of 36 feet 6 inches: the tunnel head is 5 feet in diameter, closed by bell and hopper, the former heiner feet in diameter. the former being 3 feet in diameter. The crucible is 50 inches in diameter and 5 feet in hight, pierced for 3 tuyeres at a hight of 3 feet from the bottom. There is no fore-hearth. The lining and bottom are of fire-brick. The temperature of the blast in all the experiments was between 500° F. and 700° F., the average being 600° F. It was nearly constant, because, owing to the small size of the oven, it was continually worked to its utmost.

it was continually worked to its utmost.

For some time previous to the use of coke as fuel, the charcoal used was mainly from the stock purchased from a neighboring idle furnace, and was deteriorated by the reloading, hauling by wagons and railroad and the unclemency of the weather. The consumption, therefore, was above the proper working of the plant; nor was the output as great as it has been. To place results upon as equitable a basis as possible, comparison will be made with the operation of the furnace during the month of February. of the furnace during the month of February, 1879, the last full month before the change in fuel was made, which was as follows:

Average blast per minute incubic feet... 19.

pressure of blast in lbs. per 2.7

pressure of blast in lbs. per square inch. Average weekly make of pig iron in tons (2260 lbs). Pounds of charcoal consumed per ton of iron. Cubic feet of air delivered per lb. of charcoai.... Cubic feet of air delivered per ton of iron made.
Tuyere area in square inches.
Average yield of ore per cent.

per cent. of lime to ore charge.
Ore and flux carried by 1 lb. of fuel.

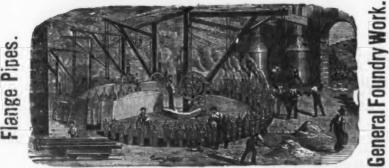
ongine were increased from 23 to 28 with cut any increase of pressure. At 10 p. m., the revolutions were 32, and the pressure cut any increase of pressure. At 10 p. m., the revolutions were 32, and the pressure 1½ lbs. The following day, owing to an accident to the water supply, two tuyeres were lost, and at that time three 3½-inch nozzles were substituted for the 4½-inch nozzles, which had continued in use up to this time. With the necessary trials to obtain best results, work could not be expected to be very regular; however, after the third day there was no serious trouble, and coke continued to be charged up to April 1, when the record was as follows: Coke. 500 lbs.; Pine Grove No. 1 ore, 950 lbs.; limestone, 380 lbs.; revolutions of engine, 33, equal to 2592 cubic feet per minute; pressure, 1½ lbs. through three 3½-inch nozzles. The strike of the Connellsville region necessitated that the coke be husbanded, and a charge in coke and anthracite coal was substituted. During the ten days coke alone was used, the furnace received 687 charges, aggregating 346,000 lbs., or 8650 bushels of coke alone Pine Grove No. 1 ore, 100.7 aggregating 346,000 lbs., or 8650 bushels of coke; 247.2 tons Pine Grove No. 1 ore, 109.7 tons limestone, and made 99 tons of iron, which, reduced to quantities per ton of iron, are equivalent to 3494 lbs = 87.35 bushels coke; 2.50 tons Pine Grove No. 1 ore; 1.1 tous limestone; 323,845 cubic feet air = 92.66 cubic feet air per pound of coke consumed. Average pressure of blast, I lb., maximum 1 1/4 lbs.; 2.32 lbs. of ore and flux were carried by I lb. of flux.

When it became necessary to use anthracite with the coke the tuyere nozzles were reduced to 2½ inches, and at 9 p. m., April 2, the following charge was substituted: 500 lbs. anthracite coal, 80 lbs. coke, 950 lbs. Pine Grove No. 1 ore, 475 lbs. limestone.

No. 1 ore refers to ore from No. 1 bank; No. 2 ore to ore from No. 2 bank.

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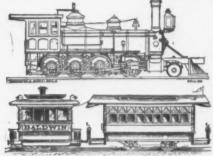
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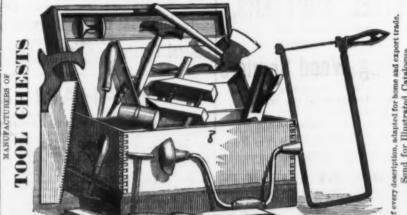
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Revolutions of engine 34 = 2670 cubic feet was 31 hours, and with 55 per cent. anthraper minute. Pressure 1¾ lbs, through three 2½-inch nozzles. In this instance the action of the blast was quite different from that when the coke charges followed those of charcoal, for, as the anthracite descended in the shaft of the furnace, the pressure in-

The following is a record of the pressure gauge April 2 and 3, 1879:

April	2,	9	p.	m.	Revolutions	34.	Pressure	13/4	lbs.
0.0		IO	D.	m.	+6	24	6.0	9	0.0
April	3,	×		m.	44	34	6.6	234	. 66
0.0			B.	m.	60	34	6.6	01/	0.0
6-6				m.	6.6	34	4.6	33/4	6.6
6.6		TO	B.	m.	6.6	34	6.6	2	44
6.6				on.	66	34	64	334	16

It continued at this pressure until 5 p. m., when the revolutions were increased. A careful estimate showed that the anthracite would be at work at 2 p. m., but the maximum pressure at 34 revolutions was reached at mum pressure at 34 revolutions was reached at noon. The increase due to the resistance of the stock was, therefore, 1½ lbs. greater with anthracite mixture than with coke alone. Up to this time no changes had been made in ores, nor were any made until April f, when a mixture of ores from the Pine Grove banks, Nos. I and 2, and magnetic ore from the Fuller mine, near Dillsburg, were employed. For 10 days up to April 11 the same mixture of fuels was continued,

ore from the Fuller mine, near Dillsburg, were employed. For 10 days up to April 11 the same mixture of fuels was continued, but the impossibility of obtaining coke necessitated a dependence upon anthracite alone. During these 10 days the engine had been run at an average of 35.5 revolutions and an average pressure of 4½ lbs.

The following is a record of the work with mixed fuels, the average mixture being 81.5 per cent. anthracite, 18.5 per cent. coke: 322,600 lbs. anthracite and 73,160 lbs. coke, making a total of 395,760 lbs. fuel consumed in making 112½ tons of iron; 292.3 tons of mixed ores and 145.26 tons limestone were charged in this time. Therefore, to make a ton of iron the following quantities were required: 3473 lbs. of fuel, 2.6 tons of ore, 1.29 tons limestone, 338,187 cubic feet of air = 96.13 cubic feet per lb. of fuel; 2.47 lbs. ores and flux carried with 1 lb. of fuel. When the last charge of mixed fuels was put into the furnace the charge was changed to 600 lbs. anthracite, 860 lbs. Pine Grove No. 2 ore, 90 lbs. magnetic "Fuller" ore, 525 lbs. limestone. Revolutions of engine, 34; pressure, 4 lbs. through three 2½-inch noxzles. During the time the anthracite was descending through the furnace the pressure increased to 4¾ lbs., demonstrating how a small amount of coke (1-7th) had aided in keeping the furnace "open." With no extraordinary disturbances the furnace continued on anthracite alone as fuel from April 12 to May 4, a period of 23 days; there were some changes in burden and volume of air, but the quantities were in general constant, except that the limestone was reduced to 475 lbs. and No. 2 ore only was used; the records of the two days mentioned are identical. During this time, however, about 10 tons of scrap which had tioned are identical. During this time, however, about 10 tons of scrap which had accumulated about the plant was charged into the furnace, and in all estimates it is

into the furnace, and in all estimates it is taken as go per cent. ore.

The record of the 23 days' blast with anthracite as fuel is: Average pressure of blast, 4½ lbs.; maximum, 5½ lbs.; 1236 charges aggregated 331 tons coal, 480 tons ore, 227.6 tons limestone, 10 tons scrap, which produced 191½ tons of pig iron, and gives the following quantities per ton of pig iron: 3871 lbs. (1.728 tons) coal, 2.63 tons ore, 1.10 tons limestone, 308.670 cubic. tons ore, 1.19 tons limestone, 398,679 cubic feet of air = 103 cubic feet of air per pound of coal, 2.14 lbs. of ore, scrap and flux, carried by 1 lb. of coal. Average per cent. of ore, 38; average lime burden, 47.4 per cent.

From May 5 to May 23 coke was added to the anthracite, shipments having been resumed, and at the latter date, the anthraresumed, and at the latter date, the antiracite stock being exhausted, coke alone was charged for two days, until that, too, was used up, when the furnace returned to charcoal as fuel, and has continued to use it to the present time.

charcoal as fuel, and has continued to use it to the present time.

On May 5 the charge of the furnace was made 125 lbs. coke and 450 lbs. anthracite (instead of 600 lbs. anthracite, which had been the basis up to this time), 950 lbs. Pine Grove No. 2 ore, 475 lbs. limestone. Revolutions, 34; pressure, 4¾ lbs. Athough no change was made in the speed of the engine, the pressure gradually fell to 3¾ lbs.

On May 10 the proportions of the fuel were changed to 285 lbs. anthracite and 285 lbs. coke; the pressure gradually fell until at 34 revolutions it was 2½ lbs. The working of the furnace necessitated a reduction of burden to 850 lbs. Pine Grove No. 2 ore and 425 lbs. limestone, the revolutions being reduced to 30 and the pressure to 1½ lbs. Several minor changes in the proportions of Several minor changes in the proportions of coke and anthracite were made to clean up stock, and on May 22 the charge was made 500 lbs. of coke until it, too, was consumed. The operation of the furnace working for The operation of the furnace working for the last two days on coke alone showed a marked decrease in pressure, which at 32 revolutions was 1½ lbs. Taking the entire period from May 5 to May 23 as working on mixed fuels, the following results are obtained: 1171 charges were hoisted, aggregating 161.4 tons anthracite, 135 tons, or 7560 bushels, of coke; 460.36 tons Pine Grove No. 2 ore, 3 tons scrap iron, 230, 16 tons limestons. 2 ore, 3 tons scrap iron, 230.16 tons limestone; and 203 tons of pig iron were made, which reduced to quantities per ton of iron give: reduced to quantities per ton of iron give:
2.3 tons of Pine Grove No. 2 ore; 1.13 tons of limestone; 1.46 tons of fuel = 3217 lbs. (155 per cent. of anthracite and 45 per cent. of coke); 317,170 cubic feet of air = 99.3 cubic feet per lb. of fuel; 2.35 lbs. ore and flux carried by I lb. of fuel. A verage pressure of blast, 2½ lbs.; maximum, 4½ lbs.

The anthracite coal used was medium soft, and of "steamboat" size. In dividing the various casts of pig iron and crediting them to the different fuels, due allowance was to the different fuels, due allowance was made for the "driving" of the furnace. In estimating this a given weight of charcoal was assumed as occupying double the space of the same weight of coke, and four times the space of the same weight of anthracite. Allowing for difference in ore and lime burdens, a practically correct estimate was thus made. The most rapid driving of the furthernlohelle butter.

was 31 hours, and with 55 per cent. anthracite and 45 per cent. coke it was 25 hours. During the month of August, 1879, the furnace "drove," so that stock did not remain in it but 9½ hours—this was with charcoal as fuel. There was no attempt to make a gray iron for foundry purposes, as the market for the charcoal pig iron is entirely confined to charcoal forges, and for the iron made with anthracite coke or mixed fuels the demand was for mill iron. The records here given are not offered as extraordinary, nor is it claimed that experiments over such brief periods can establish any fair ratio of value for the different fuels. The first ten days, during which fuels. The first ten days, during which coke was used, were partially consumed in trials, and are therefore unfair to this fuel; and in none of the experiments was the furnace run for a sufficient time to make an equitable comparison. No allowance for leakages was made in calculating the air consumption, and the results obtained are presented more for comparison than to demonstrate the actual amount of air used. There were no defective parts, and the leakages were only such as exist in any furnace in good working order, and those occasioned by sauffing tuyeres, opening notches, &c., which are difficult to determine.

The following table is merely a recapitulation of data heretofore given, placed in a convenient form for investigation. All the

figures given are averaged for the time the fuel mentioned at the head of the columns was used. The tons are 2260 lbs. each for pig iron, 2240 lbs for everything else :

Pounds of fuel consumed per ton of pig iron Pounds or and flux carried per lb. of fuel Tons of fron made per week, average Percentage of iron yielded in furnace. Percentage of lime to ore burden Average cubic feet of blast per minute. Average cubic feet of air per ton of iron. Average cubic feet of air per ton of iron. Average cubic feet of air per lb. fuel. Average pressure of blast in pounds. Tuyere area in square inches. Least time that stock was in furnace, hours Dradion of Furnation of Experiences.	Items from Record of Working.
2.831 2.83 38.26 22 2,896 197,084 77.8 77.8 77.8 77.8 77.8	Charcoal, Feb.,
3,494 2.32 70 44 44 323,845 92.66	All coke, March 22 to April 2, 1879.
3.473 2.47 38.40 2.749 338.187 96.13 4.25	81.5 pr. ct. anth. 18.5 per cent. coke, April, 1879.
3,871 2.14 5,8 47.4 47.4 398,679 103 4.75 14.7 31	All anthracite, April & May, 1879.
3,271 2.34 77 43.3 50 2,473 317,170 97 2.5 14.7 2.5	Anth. 55 perct., coke 45 pr. ct., May, 1879.
2,050 2.64 101.6 40 24.4 2,301 216,243 81 1.25 42.5	Charcoal, August, 1879.

The Volume of the Window Glass Trade of the United States.—At the be-ginning of the present season the President of the Window Glass Manufacturers' Asso-ciation issued a circular, copies of which were sent to all the members of the associa-tion, which includes all the members. were sent to all the members of the association, which includes all the manufacturers of the United States. The object of the circular was to obtain full information showing the condition and prospects of the trade. From replies received information was prepared in tabulated form, and privately printed and circulated among those in the business. These tables show that with 68 furnaces and 569 pots in the country there were in operation for a quarter, last season, 484 pots, while the estimate for 1879 and '80 is that 546 will be run—in fact, are practically now running. The following table presents these facts in a comprehensive form:

Districts where located.	No. of Fur- naces.	No. of Pots.	No. Pots for qr. or less in	Est. No. tobe run in 1879-80.
New York and Massachusetts. New Jersey and East Penna Baltimore. Pittsburgh. Western States	## #3 5 91 18	69 104 42 192 162	72 104 34 164	70 104 34 192 146

Besides the above facts, an interesting tatement is given of the number of boxes nade in the past two seasons, showing how

No. of boxes made in 1877-781,561 No. of boxes made in 1878-791,463	,368
Falling off 97 Of course no estimate could be given the number of boxes to be manufactured 1879-80.	of

The following summary of maximum averages of speed now made on the different lines of England, may be of interest as bear-

s. Miles.
1/2 London, Chatham
& Dover 45
% South Eastern 45
Great Eastern 44 Londod & South

The production of spelter in Silesia during the year 1878 was 1,192,719 cwts. The following five works were the largest producers, none of the remaining twelve reach-

J	Allowing for difference in ore and lime bur-	Silesiahuette	Cwts.
	dens, a practically correct estimate was thus	Wilhelmine and Paulshuette	228.664
Ì	made. The most rapid driving of the fur-	Antonien und Georgshuette	163,841
1	nace during February when running on char- coal was 12½ hours; when running on all	Godulla und Borbeckhuette	116,931
1	coke the best day's record showed the stock		
J	CORD DESCRIPTION OF THE PROPERTY OF THE PROPER		C10

to have been 20½ hours in the furnace; when using 81½ per cent. anthracite and 15½ per cent. coke the fastest driving was 22 hours, while with anthracite alone it other hands, 7 per cent.

AUBURN FILE WORKS, Superior Hand-Cut

MADE FROM IMPORTED STEEL. EVERY FILE WARRANTED. FULLER BROS., Sole Agents,

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Manufacture and keep in stock a full line of FILES and RASPS only, for which we claim special advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade. Superiority acknowledged wherever used, sold or exhibited.

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Augers, Auger Bits,

BORING MACHINES & BORING IMPLEMENTS TENNIS & WILSON,

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FIRST MEDAL AND AWARD given to the SNELL MFG. CO. for the highest standard of perfection attainable.

SNELL'S JENNINGS PATTERN BIT,

Manufactured from Extra Cast Steel and warranted.

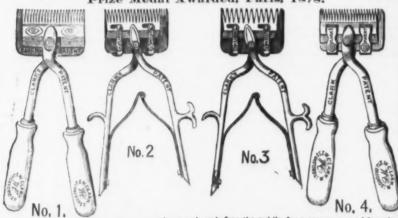
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Snell's Solid Cast Steel Augers, Auger Bits, Car Bits, Screw Driver Bits, Taper Pod Gimlets, Taper Pod Gimlet Bits, Countersink Gimlet Bits, Long Millwright Augers, Long Rafting Augers, Coopers' Doweling Bits,

AND ALL KINDS OF MACHINE BITS MADE TO ORDER.

CLARK'S PATENT HORSE CLIPPERS. Prize Medal Awarded, Paris, 1878.



No. 1.—This well-known Instrument has now been before the public for many years, and has given market. Nos. 2 and a have also met with great success. No. 2.—ONE-HANDED CLIPFER, for heads, nee, quarters and difficult parts, aving one hand at therety to hold the horse, thus enabling the Clippine, nee, quarters and difficult parts, aving one hand at therety to hold the horse, thus enabling the Clippine, nee, quarters and difficult parts, aving one hand at the try to hold the horse, thus enabling the Clippine, nee, quarters and difficult parts, aving one hand at therety to hold the horse, thus enabling the Clippine performed by one man only. No. 3.—Same as No. 2, but with coarser teeth, for legs and bellies, and the urse hair, which would break to the man and also to the machine itself. No. 2 is also used for cutting asequent liability of a WO-HANDED INSTRUMENT, with the patent grasshoper springs over the plates man hair. No. 4.—A TWO-HANDED INSTRUMENT, with the patent grass and ease of motion not to be sure improvement renders the machine simply perfect, producing a softness and ease of motion not to be sured, whilst by the peculiar and continuous self acting pressure of the springs the two plates are kept in sed, whilst by the peculiar and continuous self acting pressure of the springs are also applied Nos. 2, and 3. No. 5 stable should be without this set of incomparable instruments. See that all Nos. 2, and 3. No. 10 the stable of the spring the clipping are also applied the self-machines are continued wholesale of Messars, MCC197 & Co., 134 Duane St., New York, and all merats in the United States; and rétail, of all Saddlers, frommongers and Cutlers in the world, and of the entee, W. Clark K. 232 Oxford St. Loudon.



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Original Inventors and Sole Patentees of

Noiseless Self-Coiling Revolving STEEL SHUTTERS,

> FIRE AND BURGLAR PROOF. ALSO IMPROVED

Rolling Wood Shutters

Of various kinds. Endorsed by the Leading Architects of the World. Send for Catalogue.

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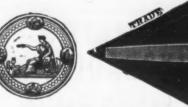
PATENTS THOMAS D. STETSON, 23 Murray St., N. Y., Patent Solicitor and Expert.

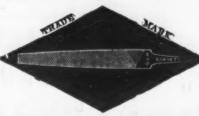
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For Heavy Doors.

The BOSS and CROWN SPRINGS for Screen and Light Inside Doors,

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NEAT AND SUBSTANTIAL. Will not warp or lose their shape. Easily kept clean.

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And Every Variety of Small Nails.

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Cut Showing Round Platform.

ROUND ZINC. 27, 30, 32, 34, 36 inch.

Manufactured of heavy metal, requiring no nailing or lining, the edge retaining its form. Superior pattern, finish and quality, Price as low as any.

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THE ANSONIA STOVE REST.



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2, 21/2, 21/4, 31/4 inch. Send for full Description and Prices.

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NEW YORK BELTING AND PACKING COMPANY.

Vulcanized Rubber Fabrics

In Every Form, Adapted to Mechanical Purposes.



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CABLE ANTISEPTIC COTTON HOSE. Patented July 8, 1873. This is a rubber-lined, extra heavy Coton Hose, woven seamless in a peculiar manner, to insure compactness and durability. The 3-ply weighs to be section, and has been tested of coops. The section and has been tested of coops in the market. For use of the found the Engineer of the Market For use of the Antiseptic Linea Antise

CAUTION.—Our name is stamped in full on all our best Standard Belting, Pack-and Hose. Buy that only. The best is the chapest. WAREHOUSE, 37 and 38 Park Row, New York.

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See our advertisement in The Iron Age first issue of each month

RICHARD DUDGEON.

No. 24 Columbia Street, New York, Maker and Patentee of the Improved Hydraulic Jacks

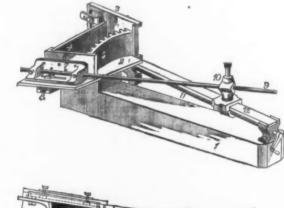
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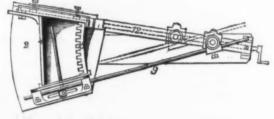
Roller Tube Expanders and Direct Acting Steam Hammers. Communications by letter will receive prompt attention. Jacks for pressing on Car Wheels or Crank Pins made to order,

of Baltimore, for forming molds for casting gear wheels and other circular or annular bodies. In the figures, 2 represents the bottom or table of the mold-former, which is firmly fixed upon an upward projecting portion of the foundation or base, i. A vertically adjustable wall, 3, can be raised or lowered at one end of the table in a radial plane with the center pin, 10. The latter is fixed on a carriage, the distance of which from the inner edge of the wall may be adjusted at will. Upon this pin swivels a hub, through the inner edge of the wall may be adjusted at will. Upon this pin swivels a hub, through which passes the adjustable rod, 9, carrying at its outer end an abutment, 7. This serves to support a facing board, 6, which forms the other end wall of the mold-former and is adjustable to the wall, 3, by means of the swinging of the center block through which the rod, 9, passes. Both the end walls, 6 and 3, have lips projecting inwardly, which serve to support the pattern. The figure, 4, indicates a back board or wall, which is supported in a vertical position by a lip on the wall, 6, and an adjustable stop on the wall,

Felthousen's Gear Wheel Mold-Former, clinkers were weighed. During the experi-The accompanying illustrations show an ment the temperature of the rear of the first and third boilers and of the uptake was apparatus invented by John H. Felthousen, registered every 15 minutes, and the coal of Baltimore, for forming molds for casting and water used were carefully measured. The result of the day's experiments are as

Duration of experiment, hours
Grate area, square feet
Fate area, square feet
grate area, square feet
Founds of coal fed to furnace.
Founds of ashes and refuse
Founds of combustibles
Water fed to the boilers, ibs.
Fressure of steam, ibs.
Temperature of feed water
"chimney gas chimney gas atmosphere.





FELTHOUSEN'S GEAR WHEEL MOLD-FORMER

manner. The segmental pattern may be formed on any arc, and of any width of face for wheels with plain rims, such as fly and belt wheels, or for gear wheels of either internal or external teeth, mortice or bevel wheels. After the sand has been properly rammed, the adjustable wall, 3, is lowered and the pattern, 5, wall board, 6, and back board, 4, are removed and the section set aside, and so on until enough are completed. When it is desired to change the adjustment of the former, so as to form a mold of an arc struck from a different center from that for which it has been used, the pin carriage is moved to or from the table, 2, by means of a screw-rod, 11, which passes through a part of the carriage and has suitable end bearings, so that the pin will form the center of the desired circle, and the rod, 9, can be swung to regulate the distance between the walls, 3 and 6, to suit the length of pattern. The rod, 9, is secured in the swiveling-hub by a suitable thumb-screw, and the abutment, 7, is held to the table, 2, by a clamp-bolt, 8, passing through longitudinal slots in the abutment and table.

Test of a Smoke-Consuming Apparatus quality. at the Pittsburgh Exposition.

The boilers supplying steam for the running of the machinery at the Pittsburgh Exposition, which is now in progress, have been fitted with a smoke-consuming furnace, the invention of Dr. H. M. Pierce of Grand Rapids, Michigan. The furnace in question was patented in July last, and grew out of a method he has perfected for burning soft coal and other bituminous fuel in his own factories.

factories.

He claims his furnace to be constructed on strictly scientific princip perfect combustion of fuel; that it makes a saving of at least 33 per cent. of fuel over results of furnaces now in use generally; that it utterly prevents smoke, and is of cheap and durable construction.

For the purpose of arriving at carefully made and reliable data as to the working of this furnace and its economy of fuel, a committee of experts was appointed by the managers of the Exposition to make a thorough and scientific test. This committee thorough and scientific test. This committee was composed of James Park, Jr., D. W. C. Carroll, Reuben Miller, Wm. Wade, W. M. Lyon, H. F. Mann, Prof. S. A. Lattimore, L.L. D., of Rochester (N. Y.) University. Capt. O. E. Duffy, Prof. F. Phillips, of Western University, Lieut. F. A. Mahan, of the U. S. Engineer Corps, Hon. A. J. Sweeney, J. H. McElroy and Hon. D. J. Morrell.

The report of this committee is as follows: Ріттавикон, Ра., Sept. 26, 1879.

Mr. J. C. Patterson, Secretary Pittsburgh Exposition Society, Pittsburgh, Pa.—SIR: The committee invited to make an accurate The committee invited to make an accurate and scientific test of a furnace for heating boilers, invented by Dr. H. M. Pierce, of Grand Rapids, Michigan, and patented by him July 1, 1878, have the honor to report that on September 26, 1879, they carefully tested the above-mentioned furnace at the Exposition Building, at the hours of 10.07

A. m. and 1.07 p. m.

When the experiment began the fire was in good condition and the water stood above the second gauge cock. At the end of the experiment the fire was as nearly as possible in the same condition as at the beginning. When the experiment was ended the fire was the experiment was ended the fire the same condition as at the beginning.

STOVE RESTS are designed to place under the feet of Stoves and Ranges, for the purpose of raising them from the floor or platform. They are about ½-inch thick, covered with sheet metal in zinc, brass and nickel plate. Highly polished and finished. Packed one set of 4 pleces ment. Respectfully submitted on behalf of the Committee. JOHN H. McElroy, Chairman: S. A. Latti-

MORE, O. E. DUFFY, F. A. MAHAN.

On the 2d day of August a committee was appointed to test this furnace at the Bangor Chemical Works. Bangor Mich. Their re-Chemical Works, Bangor, Mich. Their re-port is as follows: The furnace was under a new boiler 5 feet in diameter, 16 feet in length, containing 54 three-inch tubes, with a grate surface of 16 1-5 feet. The boiler with which the new furnace was compared, was a boiler of the same manufacture and same dimensions, with same surface exposed to the fire, with 24 1-5 feet of grate surface, and had been in use two years, and was in good order, and was set after the

was in good order, and was set after the usual manner of setting boilers.

The first test was to ascertain comparative amount of wood consumed in equal time by the two boilers when doing equal amounts of work under equal pressure. The fuel used was seasoned maple wood of first quality.

Length	of test, hour					6.5
Old fur	ace consum	ed, lbs				3,520
New fur	rnace consun	red, lbs				2,820
Differen	ce favor of n	ew, lbs				700
Saving	in favor of ne	w, per c	ent			20
Steam I	ressure on e	ach boile	r, lbs.			79
Some si	noke from ol	d furnace	в.			
No smo	ke from new	furnace.				
The	following	shows	the	ev	anor	ative

power of the new boilers :

power of the new boners.	
Ponnds of water evaporated	45.69 79 ⁸ 8,79°
Pounds of water evaporated to each pound	
of coal	2.1
Pressure of steam, lbs	50
Temperature of water as fed to boilers	800

No allowances were made for temperature or refuse. No smoke from furnace. The third test shows the comparative quantity of Pittsburgh coal consumed by the two boilers in equal time when doing equal amount of work under equal pressure:

Time of test, hours	2
Old furnace consumed, lbs	482
New furnace consumed, lbs	326
Less amount consumed by new furnace, lbs	156
Saving in favor of new furnace, per cent 30	9-10

A little smoke from new furnace at starting, none afterward. Smoke from old furnace as usual.

On October 1, 1879, a test of the evaporative powers of the boilers set after the rative powers of the boilers set after the ordinary method, and in use at Davis dam, was made. There were present Lieut. F. A. Mahan, U. S. A., H. M. Pierce, LL. D., John R. Meredith, Master Mechanic, Wm. B. Rogers, Engineer, Dennis Church, M. D., Samuel S. Fuller and E. H. Harding. The experiments were conducted by Mr. Wm. experiments were conducted by Mr. Wm. Meredith, Mr. Rogers and Dr. Church, Mr. Harding keeping the record.

The result of the experiment was as fol-

lows :

Longth of time of test, hours.

Grate area, feet.

Evaporating surface, square feet.

Pounds of coal fed to furnaces.

Water fed to the bollers, lbs.

Pressure of steam, lbs.

Temperature of feed water.

was cleaned out and the ashes, cinders and nearly as possible in the same condition as

A.G.COES

PAT.DEC. 26.1871

Cutlery.

FRIEDMANN & LAUTERJU



PEN AND POCKET CUTLERY, Solid Steel Scissors, Shears, Razors, &c.



"ELECTRIC RAZORS," And the "ELECTRIC SHEARS." Nickel Plated Bows.

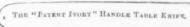
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AMERICAN TABLE CUTLERY, BUTCHER KNIVES, &c.

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MERIDEN CUTLERY COMPANY.



The oldest manufacturers of Table Cutlery in America. Exclusive makers of the CELLULOID HANDLE for Table Cutlery. A most beautiful and perfect substitute for Ivory. Also makers of all kinds of TABLE, BUTCHER AND HUNTING KNIVES. Illustrated catalogues with prices sent to the trade on application. No. 49 Chambers Street. New York.





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Absolute Safety! Perfect Ease! Time, Labor and Ma-terial saved by using the

NICHOLS ACID PUMPS,

to draw all kinds of scids from carboys. Every pump war-ranted. Send for new circular and price list. Manufactured only by

Acid Pump & Siphon Co

New London,

Conn.

Manufacturer of Pen and Pocket Cutlery, Pepperell, Mass.

My Blades are forged by hand from the best Cast Steel, and warrantd. To me was awarded the Gold Medal of the Conn. State Agricultural Society.

No. 113, Improved Adjustable Circular Plane

NICHOLS' SELF-ACTING ACID PUMP.

Factories, Wallingford. Conn.

Improved

Carpenters'

Tools.

Established 1853.

FACTORIES,

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Electro Plated Ware, German Silver and Britannia Spoons.

THE "EASTLAKE." (Patented.)

Cutlery.

ALFRED H. HILDICK, 12 Warren St., N. Y., Importer of CHAINS, ANVILS, VISES, &c.

Agency of
HILL BROTHERS & CO., WALSALL, ENGLAND
GENERAL HARDWARE MERCHANTS,

BALL'S PAT. SOLID STEEL SHEEP SHEARS. These shears are unsurpassed for cheapness, (bility and utility. They are made of one solid of steel from point to point, and cannot be brok use either in the bow or at the junction of the stand blade. Samples can be seen at above addres sample lots formished.



Joseph Rodgers & Sons'

CELEBRATED CUTLERY, o. 82 Chambers Street, New York.

F. & W. CLATWORTHY, Agents. The demand for Joseph Hodgers & Sons

productions having considerably increased, they have, in order to meet it, greatly extended their Manufacturing Premises and Steam power. To distinguish Articles of Joseph Rodgers & Sons' Manufacture, please to see that they bear er Corporate Mark.



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McCOY & CO., IMPORTERS OF

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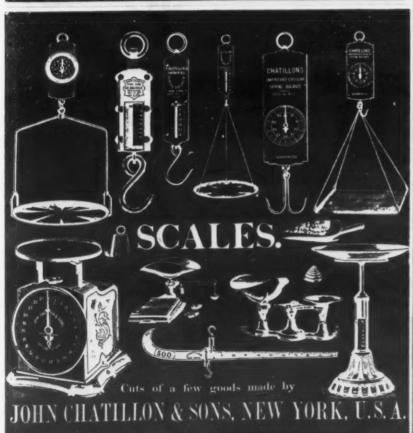
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BY STEADY STRAINS.

The tests of the powers of the various irons to resist steady tensional strains, applied in the direction of the fiber, and when manufactured into links, have furnished us with no data by which their relative powers to resist sudden strains, applied transversely, could be judged. As cables are more frequently broken by strains of this nature than by all other causes combined, it was considered necessary that the series should be subjected to such tests as would develop their relative values in this respect before we could express an opinion as to which of the varying characteristics. as to which of the varying characteristics, as developed by tension alone, indicated that the iron in which they existed could be considered as in every way suitable for the manufacture of cables. Having no appa-ratus by which such tests could be made, one was devised by the chairman of this committee, by the use of which we were enone was devised by the chairman of this committee, by the use of which we were enabled to form a very fair judgment as to the comparative values of the irons when subjected to shocks. The apparatus chiefly consisted of a cast iron hammer of about 100 pounds weight, having a wedge-shaped impact surface upon its lower side, and made to traverse two vertical iron rods of about 2½ inches in diameter and from 30 to 50 feet in hight. At the foot of the rods was placed a heavy cast iron anvil block with a vertical cylindrical opening 8 inches in diameter. In using the machine, test pieces of at least 12 diameters in length were placed across the hole in the anvil, the centers being directly under the wedge-shaped hammer, which was raised to various hights and allowed to drop upon them. Bars of some irons which were tested by this method could, while in their normal condition, the skin being in no manner nicked or weakened, be broken in two by blows of less than 3000 foot-pounds force; with other irons it was necessary to weaken them by a circular score 1-32d of an inch depth that we might succeed in breaking them, it so to being convenient to use a hammer of the hammer permitted a bar to bend to an angle of 120 degrees. Through the data collected by the test by this method of a large number of bars of various irons differing widely in character, we were able to detect the existence of a connecting link, and ing widely in character, we were able to detect the existence of a connecting link, and

acteristics displayed under tension and those produced by impact.

Iron with high tensile strength generally proved to be possessed of but comparatively low resilience; it would break under the blows with but slight deflection, and leave a fractured surface, smooth as though the bar fractured surface, smooth as though the bar had been cut in two by a sharp knife, the ends of the fibers showing, like steel, a finely granulous surface. Iron of coarse, slightly worked character would have an equally smooth and bright surface, but the coarse granulous appearance of the cut fibers denoted how slightly they had been affected by the rolls. Iron with a high elastic limit would resist the first blow with but little injury or deflection, but the deflection once started by subsequent blows, it would yield more at each than would other irons with a more at each than would other irons with a lower limit, which were more affected by the first blow. Some irons would, after having been weakened by the circular cut through the skin, resist, with slight injury, blows which would break in two bars of the

partially trace its course between the char-

same size of other irons which had not been so weakened. There are many irons valuable for many purposes which would not yield good results under this form of test; but, however valuable for other purposes, the material which proves brittle under test cannot be expected, when made into cable and subjected to strains of a similar nature, to prove equal to

its tasks. Iron which is materially weakened by a repetition of slight sudden strains, none of which produce perceptible injury, but which do so injure it that eventually a strain no greater, and perhaps much less than those previously encountered will destroy it, is not suitable for cables. Our tests by impact suitable for cables. Our tosts by impact revealed that large quantities of iron possessing the above defects had been accumulated by the government, all having passed satisfactorily the examinations, which consisted of tension tests made upon test pieces of erroneous proportions. Much of this iron was of good material, but the low price at which it had to be supplied in order that the lowest bidder should, as the law directed, strained to tensile limit, the pieces were allowed to rest for periods varying from one lowest bidder should, as the law directed, receive the contract, had necessitated that, in order to make it cheap enough, but very little work should be expended upon it. Our experiments demonstrated not only its want of value in its present state, but also that by thorough work it could be vastly improved, and when, in addition to this work, received the contract of the contract material of no greater cost, but possessing qualities that the coarse chain lacked was added, we found that most valuable iron, ca-COPPER & BRASS RIVETS
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And Sursan added, we found that most valuable iron, capable of resisting all strains, was produced. An example of such a transformation will be described. The material selected was taken from a pile of 2 3-16-inch chain iron, and was probably as inferior a bar of iron as could be found in the pile or in our markets, there being in the stock of chain iron, however, a great many equally as poor. These bolts, each over 26 inches long, were thoroughly tested. Several which had not been weakened by a score were broken square in two by a single blow of the hammer, dropped 25 to 30 feet; others, after having been struck from 10 to 20 times by the hammer from a hight of 8 or 10 feet, and showing no injury or deflection, would, upon receiving another blow iron, and three of a fine-grained bar of iron.

at the beginning. The water was kept above the second gauge. As much smoke as is usual with boilers set in the ordinary way issued from the stack during the test.

The above experiment shows a saving of a little more than 25 per cent. in favor of Pierce's furnace.

of no greater force, break in two; other bars scored as has been described would break in two at single blows of from I to 3 feet drop. In all cases the appearance of the fracture was the same, and would be described as "bright coarse granulous." The broken fragments of bars of this lot were niged with alternate lawers of old boiler iron. Report of the United States Testing
Board on the Properties of Wrought
Iron and of Chain Cables.

(Concluded from Iron Age, Sept. 18, 25 and Oct. 2, 1879.)

EFFECT OF THE APPLICATION OF SUDDEN
STRAINS TO PORTIONS OF THE VARIOUS

Broken fragments of bars of this lot were piled with alternate layers of old boiler iron (they having been first thoroughly reworked) and were hammered into a bloom from which a bar of 2 inches diameter was swaged. This was cut into pieces 24 inches long, and the pieces were scored in two places 8 inches apart, and then tested, as was the original bar, except that each drop of the hammer was from a hight of 30 feet.

The first score received 10 such blows before it was entirely torn in two, and the fractured STRAINS TO PORTIONS OF THE VARIOUS it was entirely torn in two, and the fractured surface appeared fibrous. The extreme difference between the appearance of the fractures made upon the same material (and it of great resisting powers), by different degrees of the same force, indicates that it is unsafe even for an expert to attempt to give evidence as to the character of the material from which a bridge, axle, or cable that has been accidentally broken was made, unless he knows just how it was broken. To render a judgment upon this point a person must not only be an expert, but he must know by what character and amount of force the fracture was produced.

CRYSTALLIZATION.

The question as to whether crystallization can be produced in iron by stress, or by repetition of stress with alternations of rest, or by vibration, has been very much discussed, and very opposite views are entertained by experts. We have met with but one unmistakable instance of crystallization, which was probably produced by alternations

tigation by tension, Prof. Thurston having made his discovery by torsion tests. The discoveries were entirely independent, neither experimenter having any knowledge of the other's work. As at the beginning of the series of tests incorporated in this re-port but little data had been obtained as to the operation of this new law, it was thought desirable, while making investigations in regard to chain iron, to utilize at slight expense many of the test pieces in investigating its action. By bringing a piece to the tensile limit all data as to its strength is obtensile limit all data as to its strength is obtained, and by carrying the test to rupture we gain simply the dimensions after rupture and means to reduce the strength, &c., to those measurements. We therefore released a number of test pieces from stress when the tensile limit was reached, and, preserving them for various periods, eventually broke them, with results as given be-

low.

Twelve test pieces which had been strained to the point of "tensile limit" while testing irons C, D and K, were permitted to rest free from strain for from 24 to 30 hours and then broken, with results as follows:

-		Str'gth se day over of first t	that
Number.	Iron.	Pounds per eq. in.	Per cent.
1	. C, 2 inche	31306	6.
3	C. 134 "	2,238 7,506	15.
4	C, 11/6 "	8,560	17.
5		952	2.
6	D, 176 "	7.354	15.
7	D, 11/4 "	7,773	10.
8	D, 15% "	8,605	16.
9	D, 11/2 "	6,904	14.
10	D, 134 "	8,325	16.
II	K, 1% "	4,203	8.

this distribute.	
Per ce	ent. Test:
Average gain in less than a hour	1.1 5
r hour	1.8 8
Average gain in a days	6.2 10
over 8 and less than	7.8 2
43 days I	5.3 5
Average gain in 6 months	5.3 5
01-4-1	_
Total	42

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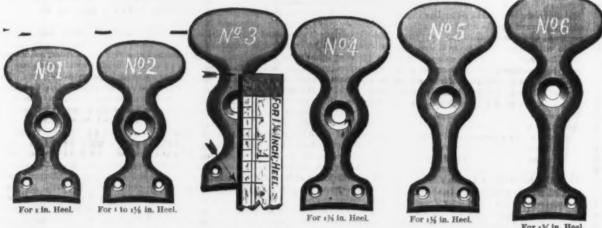
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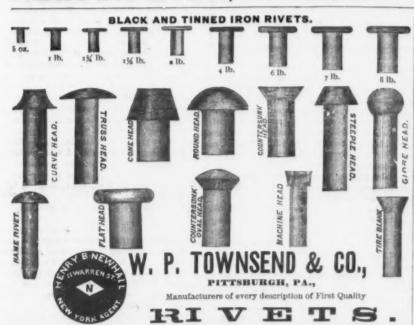
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Hawsing Beetles, Hawsing and Calking Irons iso all kinds of Handles, Sledge, Chisel and Ham COTTON AND BALE HOOKS, Patented Feb. 13, 1877; a new combination of H 456 E. Houston St., New York City. K—a very pure iron, with high tenacity. These pieces were all made of uniform proportions and tested to tensile limit upon the same day. They were then allowed to rest eighteen hours and were again tested. The results were as follows: The five pieces of boiler iron gained in strength by the resting from 6300 to 9200 lbs. per square inch, or from 13.1 to 18.4 per cent., averaging 15.8 per cent. The five pieces of contract chain iron gained from 1600 to 4600 lbs. per square inch, or from 3.2 to 9 per cent., averaging 6.4 per cent. The three pieces of iron, K. gained from 4200 to 6800 lbs. per square inch, or from 7.3 to 11.5 per cent., averaging 9.4 per cent. These experiments confirmed the opinion already formed, and indicate that a bridge, cable or other structure composed of iron of either of the two latter varieties, will receive comparatively slight benefit from the operation of this law, while ductile, fibrous metal, which possesses greater inherent power to resist sudden strains than does the iron of coarse; and in proportion of strength of chain to that of bar; and a summary of the principal physical and chemical characteristics of the irons.

RENEFICIAL RESULTS OF REWORKING METAL.

BENEFICIAL RESULTS OF REWORKING METAL. A comparison of the results obtained by steady and sudden strains upon bars, and by steady strains upon the links made from the bars, indicates that there are two classes of iron which, although possessing considerable tensile strength in the form of straight bars, are equally unsuitable for cable iron, through defective resilience or inferior welding qualities.

The first class includes the greater portion of the ordinary cheap iron found in the market—cheap because it has not received enough work, which is expensive, to greatly change its characteristics from to greatly change its characteristics from those which it possessed as crude iron. When tested by tension, iron of this class shows slight change of form at rupture, and when broken by impact it proves brittle and unreliable under sudden strains. After fracture the appearance of the broken surface is described as "coarse granulous," and generally is bright and glistening. Such iron will, when subjected to impact, break with but little deflection, and sometimes by blows of less force than it had previously withstood without sign of injury. withstood without sign of injury.

The second class includes many excellent

irons with high tenacity, which is due either to very thorough work, or to ingredients in its composition which tend to increase tenacity, frequently at the expense of welding qualities. A few notes in regard to the irons we have examined will illustrate these

irons we have examined will illustrate these points.

The general character of the "contract chain iron" before mentioned was that of class first, coarse, brittle and slightly worked. As a result of the tests the entire stock on hand was condemned, but much of it having been found to be susceptible of great improvement by acceptant in was so treated. provement by reworking, it was so treated, with good results, producing the iron known in these reports as "hammered iron." The process by which this iron was manufactured was as follows: Such of the contract tured was as follows: Such of the contract chain iron as our experiments had shown to be most benefited by increased work was selected, heated to a very high heat, and thoroughly hammered by the steam hammer, each link or bolt by itself, until it was flattened to a slab. During the process great quantities of dross and scoria were expelled. Old condemned boilers were cut up, and the better portions cut into slabs, which were heated to a red heat and the rust beaten off. These slabs of the two irons were then piled in the following manner:

in the following manner:

Boiler iron.

Twice hammered chain iron.
Once hammered chain iron.
Crown sheet boiler iron.
Once hammered chain iron.
Twice hammered chain iron.
Twice hammered chain iron.
Boiler iron.

These piles were about 20 by 10 inches and were heated and hammered into octagonal blooms. The advantages which it was hoped would be secured by the above method of piling were that the soft and comparatively plastic center would permit extreme flexure; that the coarse, once heated chain iron would, the coarse, once heated chain iron would, being supported by this yielding center, sus tain flexure to a much greater extent than if not so supported; and that the thoroughly reheated and reworked layers of chain iron next to the outer layers would impart strength and toughness to the mass, and would absorb any blows or sudden strains, which received upon the outer surface would encounter, first, a cushion, and then a tough iron; and that the resultant iron would possess great power to resist both sudden and steady strains, would bend double without breaking, and the parts not being perfectly homogeneous, the rupture of a portion of a bar would not render valueless the remainder. That we secured all these advantages our tests show plainly. Tested by tension, the iron showed fair tensile strength (average 53,000 pounds), uniformity and outsility tested by incost have deal size. tension, the iron showed fair tensile strength (average 53,000 pounds), uniformity and ductility; tested by impact, bars of all sizes in their normal condition would sustain heavy blows with slight deflection, and finally double till the sides were close together, without injury. Extreme tests were made by impact; 197 bars of 2-inch diameter were swaged from the blooms, each of which was circled with a score 1-22d of an which was circled with a score 1-32d of an inch deep in the center; these bars were struck upon this score by the wedge-shaped hammer of the impact testing machine, dropped from a hight of 30 feet, the hammer weighing 100 pounds. Each blow was con-sidered to be gual to 2000 feet, rounds

2.	OF	1	per	cent	resisted	١.				 ۰		٠	. 7	blows.
		2.54	10	6.6	6.6								.6	116
5,	64	13.6	6.5	6.6	46								. 2.	6.6
20	61	24 6	6.5	6.6	44								. 4	6.6
,	44	34-2	66	6.6	6.6								3	4.4
х,	60	30.	6.5	6.0	6.6								3	0.0

The three which broke at a single blow vere found to have been made partially of

poiler steel.

From these hammered blooms, those which had resisted at least three blows were re-heated and rolled into iron A. All of the bars of this iron showed great ductility and change of form under tension, having a rather low elastic limit, which was due no

Orde	r	strength, area.				Elor		Proportion o	short cha to that bar,	
Value	18.	Iron.	Lbs. per sq. in.	Iron.	Per cent.	Iron.	Per cent.	Iron.	Per cent.	
13 14 15 16		L K D ₂ C ₂ M P N Fx ₃ D ₁ Fx ₃ B A E ₁ E ₂ F C ₁	A	OA PX F D ₁ P FX ₂ E ₂ FX ₁ C ₁ C ₂ C ₃ K B N L J	54.2 49.0 48.9 48.1 47.8 46.6 45.8 45.8 45.0 45.8 45.0 36.2 38.2 38.0 36.1 36.2 36.2	Px E ₂ P O A Fx ₂ Fx ₁ M D ₂ N C ₂ K B C ₁ E ₁ J	20.9 27.7 23.2 22.7 22.3 21.0 21.0 20.9 20.2 18.2 18.0 17.9 17.2 15.4 15.3 12.6 8.3	O Px F Dy Fx3 Cy N P Fx1 M K	x68 2 x68 1 x65 7 x63 9 x63 2 x58 3 x57 5 x56 8 x57 5 x54 5 x54 5 x54 5 x54 5 x54 5 x54 5 x54 5	
Nor	Slag	Cobalt. Nickel	Carbon Copper	Phosphorus.	:		Number			
Norn.—The welding values of D 1, J and L are omitted, as there percentages are averages when more than one analysis was made	•			rus per cent	in power of resisting shocks.	in reduction of areain elongation		Name of iron.	72	
and I	0.331	0.008	0.095	0.072	#:	5.5	-	1	EVERA	
L are or	0.455	0.010	- n n	0 102	12	13		×	T TO Y	
omitted, a	0.722	0.026	0.020	0.903	6.0	000		D ₂	E PRINCI	
as there		0.020	0.042	0 160	~ 00	112		Ca	CIPAL P	
were	3.044	0.070	0.044	0.226	312	00 00 0		M	HYSICAL	
no short	0.848	0.037	0.033	0.25	9 0	000		P	AND C	
chains	1.710	0.039	0.055	0. 101	13	10		N	HEMICAL	
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from them.	1.314	0.020	0.066	0.005	40	нык		Px	CTEMES	
	0.546	0.023	0.0160	0.154	6:	10 (8	10	Dı	TICS OF	
Dı we		0.042	0.006	0.10	07	U 7	-	K.	MORE	

The Bulletin of the American Iron and Steel Association says: "The extraordinary and wholly unexpected demand for steel and wholly unexpected demand for steel rails for prompt delivery is to be met in part by a novel expedient. An experimental importation of 10 tons of Bessemer steel blooms has been made by a Philadelphia house for an iron rolling mill in Eastern Pennsylvania. It is the intention to roll these blooms into rails, and it is supposed that rails thus manufactured will be as eagerly sought after as those made from American blooms. The small importation was made not to test the capacity of our iron rolling mills to satisfactorily manipulate the blooms, but to make a case for the Treasury officials which would settle the Treasury officials which would settle the question of duty, and thus demonstrate the practicability of rolling steel rails here from English blooms at a profit. Judge French, assistant secretary of the Treasury, has deassistant secretary of the freasity, has de-cided that the blooms are subject to a duty of 45 per cent. ad valorem, as manufactures of steel not otherwise provided for, and this duty will permit of their importation at a profit. We expect to hear of considerable importations being made before winter."

doubt to the fact that the softer and more ductile portions stretched first. Tested by impact, all sizes up to 2½ inches bent completely double by heavy blows (3000 foot-pounds) delivered upon the There are three manufactories in this

The Iron

Metallurgical Review.

New York, Thursday, October 9, 1879.

DAVID WILLIAMS . . Publisher and Proprietor. JAMES C. EAYLES . . . Editor. JOHN S. KING . . . Business Manager.

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The publishers of *The Ironmonger*, 44a Cannon street ondon, England, will receive orders for subscriptions a, advertisements on our regular terms.

First Page.-Working Phosphoric Pig Iron for the Open-Hearth and Puddling Processes, at

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Krupp's Works, Essen.
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Fifth Page.—Experiments with Charcoal, Coke and Anthracite in the Pine Grove Furnace, Pa. (Continued).

Seventh Page.—Experiments with Charcoal, Coke and Anthracite in the Pine Grove Furnace, Ninth Page.-Felthousen's Gear Wheel Mold-Former. Test of a Smoke Consuming Ap

Mold-former, 1985.

paratus at the Pittsburgh Exposition.

Eleventh Page.—Report of the United States

Testing Board on the Properties of Wrought Iron and of Chain Cables.

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Chicago and Pittsburgh Hardware and Metal Thirty-third Page .- Boston and St. Louis Hardware and Metal Prices.

telegraph that on the 5th inst. a large meetthree commissioners to study the situation, necessary, to co-operate with any commis-States. Fernando Wood, M. C., and Messrs. Frederic Passy and Leon Chotteau adinterests suffered considerably in conselic opinion must exercise an irresistible pres- ment and the competition of workmen with ducing action of the gases in good or bad by one, of the main obstacles to its intro-

terest felt in the proposed treaty is, like its

The Wages of Labor.

One of the most satisfactory evidences of IN THE UNITED STATES, BRITISH AMERICA AND the substantial improvement in business, response which capital has made to the demands of labor. The labor question is past six months has been remarkable, averkinds of iron products. This is a very substantial and gratifying condition of affairs, and at first sight it may seem as though the workingman should participate to the full extent of the increase in the value of the products of which labor forms an important item. A careful investigation of the subject, however, will considerably modify opinions of that kind. We could cite numerous illuscounted the future. We know of many ment for their men. At the time these contracts were taken the men congratulated and thousands were out of work, they, at any rate, were sure of steady employment. When business began to improve, wages were advanced. In many cases every dollar of this advance has been so much dead loss on contracts such as we have mentioned We know of an instance in which a large order was taken about six months ago at a price which was then considered quite satisfactory. That contract is still under way, although the cost of production has been very materially increased beyond the original estimate, so that the finished work is being delivered at an actual loss, while the ray material will have to be replaced at an ad vance of from \$12 to \$14 per ton. In point of fact, the raw material is now being delivered at \$2 to \$3 per ton more than the company are receiving for the finished product under old contracts.

The labor question should also be considered in reference to its influence on business in the future. If there was a reasonable certainty that values would be maintained, labor in some departments might properly claim a further advance; but a econd or third advance, as some are demanding, would certainly be premature and dangerous. The interests of the country will be best served by a moderate range of sibly lead to a serious reaction. There is al-

commerce, they would probably drop its changes his earnings. His share of the discussion for the present. We learn by profits gained by the co-operation of capital which the reactions take place (whether re-

have given his audience some valuable in- labor leads to competition among employers Catalan forge, the Siemens rotator, and the method of converting pure pig. struction if he had told them the story of his to secure skilled mechanics, and the result Du Puy method. In these also the chemical attempt two years ago to fix the tariff in the of this competition is seen in the better wages interest of foreign manufacturers, what a offered. If there should be a reaction from while the action of the reducing atmosphere mess he made of it, and how his effort was any cause, coupled with a partial suspenregarded by the people of the United States. sion of manufacturing, the competition M. Chotteau might have told them with of the workingmen to secure employment phosphorus. In stating that the losses, cost Lowthian Bell. The average percentage of profit that, while he was politely treated in would cause wages to drop rapidly and inthis country, he failed to make any impression upon the public mind, and that the incounsels of the labor unions. But there are expected benefits-all on the side of France. other and good reasons why such moderation is just now very desirable. As we have shown, the increase in the cost of manufacmore than proportionate to the increase in selling prices, and in but few instances are may be found in the prompt and liberal the profits to manufacturers of iron or iron goods in proportion to the volume of their business. But the fact that prices have ad- flame being oxidizing, while the temperature always a difficult one to deal with, and is vanced to a line which enables the preducts especially so at the present time. The of cheaper labor in other countries to float advance in manufactured goods during the over our tariff and into our markets, has revived the hopes of importers and quickened aging probably from 25 to 50 per cent. in all the activities of those interested in seeing kinds of iron products. This is a very subforeign competition. A year ago it seemed impossible that the United States would ever again become importers of iron to any considerable extent, but now it would be difficult for the greater rapidity with which the to learn the actual magnitude of the transactions concluded or in progress looking to such importation. There can be no doubt that afford against the oxidizing action of the some effort will be made during the next flame. He considers the advantages secured trations to show that labor is already not two sessions of Congress to break down the by the use of manganiferous cleaning ore only receiving a full share of the benefits wall which stands between our industries too dearly purchased. It may be of interest arising from an improving condition of and the flood of foreign manufactures in this connection to draw attention to Mr business, but that it has to some extent dis- ready to overwhelm them. The uncer- A. L. Holley's paper which we print elsetainty which, it must be confessed, attends large concerns which made contracts six months or a year ago at prices which petual menace to the interests of labor, and for instance, in the case of the Luxmonths or a year ago at prices which barely paid expenses. This was done to the working classes cannot afford to force a free from manganese has been successkeep the works running and find employ- too rapid advance in prices, nor to alienate fully tried at Essen. In this, as well as the sympathies of other classes of the com- in the Thomas process, M. Pourcel considers munity by unreasonable demands. Better the action of silicon all-important, and he themselves that, although times were bad anything than this. The working classes suggests that a good means of proving exhave in the present tariff some guarantee of fair prices for their labor, but if our markets should be in any degree thrown open to the cheaper labor of Europe, those who are now clamoring for advance after advance would be the first to suffer sharp and permanent reduction. It will be well, therefore, to make haste slowly, and secure a both Mr. Richards and Mr. Snelus took expermanent, steady market in preference to ception, as the result would be a violent a short period of unhealthy activity, to be followed by protracted depression.

The Iron and Steel Institute and the

Dephosphorization of Iron. Metallurgists the world over have been looking, forward to the autumn meeting of the Iron and Steel Institute of Great the phosphorus is eliminated during the be-Britain with eager interest, as it was generally believed that much valuable data would be presented on the important question of the dephosphorization of iron, and on the practical results of continuous working of the Thomas process. The English papers which have just been received, notably Engineering and the Ironmonger, give full reports, from which we take the following summary of the papers and discussion on the allabsorbing metallurgical topic of the day, as we find it imposssible, in view of the prices, and too rapid an advance will post crowded state of our columns, to begin our der to reduce the additions to one instead of usual full abstract of the proceedings until two, had been only partially successful. An ready danger to the iron interest in the a future issue. The direct contributions in heavy importations from abroad, and the higher prices go the more certain it is that point of view, of less value than was anticiimportations will increase until our markets pated, but the discussion which followed are overloaded with goods, to be followed the reading of one paper seems to have Reese, of Pittsburgh. The results, it would by the results which naturally attend a called out some important statements bearing seem, have been very satisfactory, one-half sharp competition among holders desirous of realizing. The condition of the working classes in other countries must also have an important influence on our labor market, Pourcel, of Terrenoire, whose criticism of vent the wearing of bottom, and the only and it may be regarded as certain that the Thomas-Gilchrist process has evoked so difficulty met with was a gathering of matevalues cannot be safely pushed any further much comment on both sides of the Atlantic. rial at the nose of the converter during the until there is a corresponding movement in Europe.

Although, in common with all the papers submitted by foreigners to the Institute, it We do not expect the working classes to reason deeply or logically in matters of this by no means as clear and forcible a statement fully made with pig running as low as one kind, but those who shape their opinions of the views of the eminent Frenchman per cent. of silicon. Thus the limits within course of affairs. As another instance of and lead their action should counsel moder-ation. The outlook is brighter for the workingmen to-day than it has been in many years. Measuring his wages by its the order and strict sequence of a scientific the heat necessary to fuse both the steel and newspaper. With a view to assist indiexchange value or purchasing power, he is paper. M. Pourcel, in presenting the the additions, would require much larger vidual enterprise in opening new markets far better off now than he was before the question of the introduction of phosphorus quantities of the element the combustion of for machinery, iron, steel, &c., in China panic, when the country was experiencing into iron and steel country into iron and steel country was experiencing into iron and steel country was experienced in the country was exp inflation. The present basis of values makes havior of phosphorus in the different metallurgical operations. These three, which Bolckow, Vaughan & Co.'s works at formed on all subjects likely to prove of interest the people of this country take in then in securing for the workingman the vary considerably in importance, are: the Eston, shows an intelligent and persethe proposed Franco-American treaty of comforts and gratifications for which he ex- chemical composition of the cinder, the temperature, and the nature of the atmosphere in and labor is, therefore, increased, and this ducing or oxidizing). In the blast furnace Every weak point appears to have been assist in educating twelve young men and ing was held on the Champs-Elysées to ad- fact should be taken into consideration. It it is the temperature which exercises a pre- given full consideration, and the means sending them to foreign countries with libvocate such a treaty. A resolution was adopted inviting President Grevy to appoint the rate of wages are the result of causes composition of the slag, which is often which find their origin in the operation of highly siliceous without being therefore pense, have been wisely chosen and practito report to the proper ministers and, if natural laws. Advances may be hastened charged with a greater amount of phos- cally carried out in a way which must chal- trained travelers who would do all within or reductions retarded by the agency of phoric acid. M. Pourcel has found, in pro- lenge admiration. A few months since sioners who may be nominated by the United strikes or organized movements, but such ducing high grade ferromanganese in the many metallurgists had grave and wellvariations are temporary. The long period blast furnace, that manganese in the cinder founded doubts, not as to the chemical suc- trade, a system which, if it does not call for of depression through which we have passed has not, as Dr. Percy assumes, the property cess of the new process, for that was beyond dressed the meeting. Mr. Wood said he has shown thinking men among the working of retaining phosphorus, and he believes, dispute, but as to the possibility of carrying spoke only as a private citizen of the United classes that trade unions, however strong or therefore, that in the blast furnace, where it to a successful issue on a commercial scale States. He declared the present relations well organized, can no more resist the oper- the third element, a reducing temper- for more than a few localities. Although between France and the United States not ation of natural laws than human agency ature, is constant, the first, the nature of as yet no exact figures have been published fated Madeira and Mamore Railroad enterwhat they ought to be, and that their mutual interests suffered considerably in conseinterests suffered considerably in consesame is true in times of prosperity. When quence. The only remedy was the conclusion the point is reached at which the power of this view strong exception was taken, vantages above the older practice when siou of a treaty. It would be necessary to capital to pay wages is exhausted, produc- notably by Mr. Snelus, who pointed out that adopted on a large and continuous worklower the tariffs for that purpose, and pub- tion ceases, labor is thrown out of employ- a very close relation exists between the re- ing scale, we believe that the removal, one

finds this kind of talk more popular in petition, after all, which determines the the pig. M. Pourcel then passes to a review composition of the cinder is not important, varies with the temperature, so that a low heat is requisite to produce metal free from of fuel, labor, &c., in the Du Puy process have not yet been determined, M. Pourcel wisdom of moderation at all times in the has failed to keep abreast of currrent progress, as the data to which he refers have been quite fully published through the carbon must be decreased as phosphorus is Journal of the Franklin Institute and The increased. The rails resisted the impact of Iron Age, and the articles in question were

In puddling, a direct influence upon de-

phosphorization is assigned to the chemical

composition of the cinder, the action of the

acts in direct proportion to its intensity.

Manganese is held to possess a favorable in-

fluence upon the removal of phosphorus, less

because of any chemical action than by rea-

son of the great fluidity of the cinder charged

with manganese. Passing to the Bell and

Krupp refining processes, M. Pourcel doubts

whether the high price of manganiferous

ore used in the latter process compensates

purification is effected, and for the protection which a more fluid manganiferous slag would where, and from which it will be seenperimentally the truth of his hypothesis on the phases through which the phosphorus passes in a lime-lined converter, would be to blow pig containing a high proportion of (oxide of iron) and one of lime. To this the metal out of the converter. Both carbon and silicon would be too rapidly elimimade of samples taken at intervals of three minutes during a blow, had proved that M. Pourcel's theory formerly expressed, that ginning of the process and is reintroduced by the later generation of carbonic oxide, was erroneous. They had at Eston made experiments to avoid the reduction of phosphoric acid by the introduction of spiegelisen, by adding previously a certain quantity of highly siliceous iron, which had the effect of quietly disposing of the oxygen, the presence of which had hitherto caused the violent commotion during the addition of spiegel. A later attempt to make a compof siliceous iron and ferromanganese, in orinteresting change which was made conthe method, it will be seen, which was quite recently patented in this country by Mr. moters of the new dephosphorizing method know. The king proposes to extend this

opinion that it is now, or in the very near France than at home; but perhaps he could value of labor. Just now the demand for of several direct processes—that in the future, destined to displace the present

> In this connection it may be of interest to refer to the results obtained by the Northeastern Railway with rails made from Cleveland pig at Eston, as communicated to the meeting by Mr. I. the first lot obtained was o. I per cent. of phosphorus and 0.3 per cent. of carbon, which was made low, in accordance with the experience first gained at Terrenoire, that a one-ton drop, falling 10, 15, 20 and 27 feet turing has thus far, in many cases, been freely copied by Continental technical successively, while the ordinary test called more than proportionate to the increase in journals. that it might be regarded as fairly proved that steel rails of good trustworthy quality can now be produced from Cleveland pig.

M. Pourcel's paper, which was valuable even if it did no more than to call out the important statements to which we have referred, concluded with a reference to the pig and ore process which brought out some points to which we will return later on. There were also introduced to the notice of the metallurgical world two new methods designed as improvements of the manufacture of Bessemer steel, which will be duly presented to the readers of The Iron Age in forthcoming issues. Numerous communications were contributed to the Liverpool meeting which will make it rank fully equal in importance to the previous gatherings of the Institute.

Belgian Enterprise.

Among the nations of Europe there is none, probably, which in late years has shown so much enterprise and discretion in seeking an outlet for its manufactures in foreign countries as Belgium. Surrounded by large and powerful neighbors who command vast resources, the little kingdom has struggled bravely and intelligently for a share in the business which the non-manufacturing countries have turned over to European workshops. The demands of a limited home market do not suffice to keep a large worksilicon to phosphorus, with an addition of 20 ing population employed, and extensive plant per cent. of a mixture of three of blue billy of furnaces and machinery in operation constantly enough to render manufacturing profitable, while competition in foreign markets can only be faced by the strictest economy of ebullition which would throw one-half of working and marketing. Belgian workmen are frugal and industrious, and Belgian manu facturers and merchants vigilant and enternated, and the charge would become pasty. prising. They claim and have obtained the Mr. Richards stated that a series of analyses most earnest and intelligent co-operation on the part of their government, which leaves nothing undone to promote the industrial and commercial interests of the country. While the relations between the government and the industries of Belgium may appear to Americans altogether too paternal, it may be well to note briefly what efforts are being made by those in power in Belgium. There is perhaps no country in which the consular service is made to serve the interests of commerce and industry better, and in none is the work of its members as valuable and as suggestive. The government is not content, however, with issuing a circular recommending or ordering the preparation of occasional reports. Recognizing the difficulty which men must experience who have had no opportunity to watch the rapidly changing currents of enterprise in their own country, by reason of long absence and restricted relations, the government does all in its power to keep them correctly informed as to the aspect of industrial affairs at home. One of the means by which representatives in foreign countries are afforded an opportunity of obtaining a correct idea of what is wanted at home, is a compilation of the re ports of Belgian industrial and commercial associations which is distributed among them. The machinery is cumbersome, it is weekly variations, at a sacrifice often of s low as one broader and more value to the trades whose wants and capacwhich seems even now to have borne fruit. system, and to call upon each province to therefore, virtually amount to a proposition to organize on joint account a corps of welltheir power to detect, follow out and examine new and promising opportunities for imitation, certainly challenges admiration.

Messrs. P. & T. Collins, of Philadelphia, deny that they have "abandoned" the illprise; and in a rather ill-natured letter to the North American of that city, Mr. Thomas Collins says: "As we have never received a dollar on our contract, it was necessary to reduce our expenses to the smallest amount possible, and this we have done by sure on the two governments. Mr. Wood each other results in reductions. It is com- working and the contents of phosphorus in duction is a sufficient warrant for the "bringing home our men with the excep.

Prisi ki la cri in \$22 has ch mo co vo de un see fer Th wh

"tion of 15, who were left in the charge of satisfied with the fulfillment of the promises "competent foremen to take care of the made them. "property." The English stockholders seem to have treated the contractors very shabbily in this matter.

Philadelphia is about to venture a wholesale experiment in elevated railroads, if reports from that city are trustworthy. The Sunday Times says: "We heard it as-"serted yesterday, by those who professed "to know, that since the passage of the "Filbert street elevated railroad ordinance "by Select Council on Thursday, plans are "in course of preparation by interested 'parties for upward of so miles of elevated railroads in other streets of Philadelphia, "which certain speculators expect to seize "upon, or get from Councils the grant of "the right of way, which will enable them "to pre-empt the principal business thor-"oughfares of our city for elevated rail-"roads." The North American says on this subject that it is evidently the intention of the Pennsylvania Railroad to construct and put in operation the Filbert street elevated railroad as soon as possible, and that the contract for the ironwork has already been given out. This includes the iron superstructure of the bridge which is to be thrown across the Schuylkill River, and every pound of iron which will enter into the construction of the elevated railroad proper. The contract has been awarded to the Edgemoor Iron Works, and calls for about 5,500,000 pounds of iron at a cost of about \$300,000. The time for the deliveries is not specified, but the work will begin immediately.

The prospects of trade are evidently improving in England, and prices are advancing with sufficient rapidity to warrant the belief that large importations of iron and steel will not long be possible. The Economist of this week says: "There has been a "further sharp advance in prices in the iron trade. Scotch pig is 4/6 and Cleve-" land 6/ per ton higher on the week, both " principally on American orders. The stocks in and around Middleshorough are "however, still measured by hundreds of "thousands of tons. The upward move-" ment is too feverish, and a relapse may "be anticipated." It will be remembered that similar fears of reaction were entertained in this country when the improvement began with an advance in prices. If the revival should correspond with that which has taken place in this country, the 'hundreds of thousands of tons" will not last long. We have no doubt that the effect of activity in this country will be felt favorably in Europe, and especially in Great Britain, and that while the amount of iron and other merchandise needed by the United States is not likely to have any important influence in reducing stocks, the fact that any demand exists will probably have the effect of quickening the sluggish pulses of trade and stimulating activities in other directions.

If experts have disagreed as to the origin of petroleum, we cannot wonder that those who speculate without knowledge should disagree. We mentioned in a recent issue that an anxious gentleman in Western Pennsylvania was circulating a petition to be presented to the Legislature, asking that further pumping of petroleum be prohibited, because the oil was needed to lubricate the earth's axis. As opposed to this theory, which attributes petroleum to the creative art of a beneficent Providence for a wise and desirable purpose, we hear that the Russian priests are teaching the farmers that after Satan had rebelled against heaven, and was vanquished by the heavenly host, he was imprisoned beneath the mountain range of Caucasus, and condemned to rot there. The result of this decomposition of the devil is-petroleum, which, therefore, is an infernal fluid, as is of France the principal works are said to be evident from its nauseous odor and danquite busy, and in Belgium the producers of gerously inflammable qualities. gerously inflammable qualities. We do not presume that this hypothesis is susceptible of proof, but there are many who might be inclined to believe it in this country. Remembering how much money was staked and lost on delusive promises of large and continuous profit in the days when oil specution and leave us masters of the field. lation was fashionable, it would not be diffi- Taken altogether, therefore, the situation lation was fashionable, it would not be diffi-cult for the imaginative to trace some subtle appears to possess many elements of en-couragement and hope. It would probably relation between B S and Beelzebub, nor to detect the literary style of the Father of Lies by ear marks in the prospectuses of certain oil companies. They might even conclude that Satan is actively interested in the management of the Standard Oil Company, if they should happen to be identified

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There is said to be a demand for this kind of labor just now, on account of the large orders for locomotives and the increased activity in shipbuilding, boiler making, oil tanks, &c. The men are to be paid \$2.12 per day. Within a fortnight there have arrived considerable numbers of ma-

The death is announced of General Francis L. Vinton, a prominent mining engineer who has done much in late years in bringing into notice the mineral resources of Colorado, and notably of Leadville, where he died on the 6th instant, at the age of 47 years. He entered West Point as a cadet in 1851, graduated in 1856, but resigning his commission commenced his studies as a mining engineer at the Ecole des Mines, Paris, graduating in 1860. He entered the army at the outbreak of the war, and continued in active service until he was severely wounded at Fredericksburg. He then devoted himself to his profession as mining engineer, and from 1864 to 1877 was Professor of Mining Engineer ing at the Columbia School of Mines. He resigned his professorship two years ago, and going to Colorado rapidly gained a wide reputation as an expert.

The Cincinnati Exposition has proven a grand success. Up to Saturday evening, October 4, the aggregate number of visitors was 313,595. Every department is crowded daily from 9 a. m. to 10 p. m. The exhibits are the finest and most elaborate that the West has ever boasted of, and it has been said that the exposition at Cincinnati this year is the finest ever known in the United States, excepting the Centennial. All the railroads leading to Cincinnati are doing a very heavy business in the transportation of engers to and from the city.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

> (From our Regular Correspondent.) LONDON, ENG., Sept. 22, 1879. THE TIDE OF PROSPERITY

appears to be at length rising, although its primary effects are very diverse and curious in their incidence. It is, nevertheless, now in their incidence. It is, nevertheless, now beyond question that a change for the better is being felt, especially as regards those branches which are generically considered to belong to the iron trade proper, as dis-tinguished from the hardware industries and more advanced miscellaneous branches the business. The most singular and of the business. The most singular and striking part of the changed state of affairs appears to me to be the circumstance that the bulk of the orders, to which the increased activity is owing, emanate from the United States—a market which had for some time been, by common consent, regarded as being next to entirely lost to the manufacturers of Great Britain. The home trade of this country is almost quite as dull as it has ever been at any previous period as it has ever been at any previous period of our history, and the exceedingly unsatis-factory harvests, which hightens the per-vading agricultural distress, renders any change most unlikely. It is thus pretty clear that the unexpected and unprece-dented activity on your side is having the effect not only of furnishing us with com-missions for goods needed by yourselves, but is benefiting us in other ways by minimizing your competition here and in the various external neutral markets where the manufactures of the two nations have lat-terly been vigorously pushed in vehement opposition to each other. With abundant opposition to each other. With abundant occupation at home, attended by all the many advantages of supplying the requirements of your own people, and free from the long credits and many uncertainties of foreign indents, it is seen that your manufacturers will, for a time, relinquish their ex-porting exertions and concentrate their energies in developing more remunerative business. In this manner, if in no other, we seem certain to reap sundry advantages and to receive colonial, &c., commissions which will do much to encourage the renewed activity that is now in its incipient and initial stages. We have also other points in our favor in the shape of the French and Belgian markets, from both of which we have reports of a cheerful and buoyant nature. In some of the leading iron centers re well sold forward so much so be idle and presumptuous on our part to ex-pect any parallel to the extraordinary briskness of your market, but it will not, perhaps, and steady turnover between this and the end of the year. The one great fear ex-pressed here is that the American "spurt" pany, if they should happen to be identified with competing interests.

The steamer Lord Clive, which arrived in port last Thursday, brought a party of riveters who had been engaged on the other than the competing interests.

The steamer Lord Clive, which arrived in port last Thursday, brought a party of riveters who had been engaged on the other this idea, while, on the other hand, there is that the American "spurt" may prove ephemeral—a mere "flash in the pan," which will do more harm than good, and raise expectations destined to be rudely blasted. So far, however, we have no during the week—which total does not into the competing interests.

Ilreger shipments and a greatly reduced production. There are only 65 furnaces blow-may prove ephemeral—a mere "flash in the pan," which will do more harm than good, and raise expectations destined to be rudely are shown by John E. Swan & Bros., Limburgh and the competing in the competin this idea, while, on the other hand, there are abundant particulars in confirmation of the statement that the change is bona fide—real, solid and substantial. There is, consereal, solid and substantial. There is, consequently, a decreasing minority of fearful ones, and with another week's strong budget Scotch ports from Middlesborough, on the other hand, have discussed to the extent other hand, have discussed in the extent other hand, have discussed in the statement of the statemen from your side I think we may venture to prophesy their absolute non-existence. Those of 41,570 tons on this year's total of 1,70,623 is reported upon to date by several of the

which produces more pig than any one other district in the whole world, makers are not only declining to "commit themselves" by entering into forward contracts, but have entering into forward contracts, our many instances, positively advanced selling rates to the extent of 2/6 to 3/ per ton.

They, too, are participating in your "rush," They, too, are participating in your "rush," and are reported to have sold over 25,000 tons of pig for prompt delivery into your Eastern ports. The other large ironmaking centers are catching the infection. South Staffordshire is enlarging its producing capacities by re-lighting some of the long-dormant furnaces, and has at length a market for its pig iron, whereas, as a leading local man observes, "for a long time there had been no market In the Forest of Dean and South Wales idle mines are being made ready for action, and elsewhere the decks are being cleared, so that at any moment owners of orks properties may utilize their plant in the manner best calculated to mee the wants of the time being. It cannot be said, nevertheless, that there is any notable change in the manufactured iron depart ments, although in a few cases orders of ome relative magnitude have been received. Prices may go up shortly, but the probabili ties are that no very noticeable change will be recorded prior to the quarterly meetings on and about October 9th. An early symptom of the tentative alteration is that given by the

SCOTCH IRONMASTERS' ACTION

taken with the avowed and express inten-tion of checkmating the agitation of the coal miners for higher wages. The collier had made a demand for sixpence a day more money, and had obtained it from many of the coal owners, especially from those colliery proprietors who sell most of their coal to the public for household or manufacturing purposes. They then made the same request to the employers who are both iron and coal masters. The masters refused to make the concession and promptly decided to blow out 30 out of the whole number of 89 furnaces blowing, so as to throw a large additional quantity of coal on the open market. This decision they made operative last ket. This decision they made operative last week, so that there are now only 69 Scotch furnaces going. The great Mr. Alexander Macdonald tells the miners they should retaliate by limiting each man's daily output to the extent of half a ton, but up to now I don't hear that the men have adopted his don't hear that the men have adopted his suggestion. I suppose, indeed, that at the existing rate of remuneration, the miners will not be willing to thus reduce their own wages. The ironmasters' conduct is bold and pugnacious. They seem determined to nip the wages agitation in the bud, but they mp the wages agitation in the bud, but they may possibly have another motive—namely, to force up prices by rapid jumps, in the belief that the present demand may not last, and with the knowledge that stocks are large enough to meet almost any given requirements. The issue of the struggle will be anxiously awaited. In the meantime the

DISTRESS IN THE NORTH OF ENGLAND is attracting much attention. The Mayor of Middlesboro's appeal to the Home Secretary has been published by the newspapers, as also has the reply of that minister, stating that he has no available funds, but will lay the matter before the Chancellor of the Ex-chequer, so that the matter has been squarely put before the public prior to the advent of the cold weather. Some of the journals have also dispatched "specials" to the Northern iron district, and these gentlemen have turned out "copy" which has been interesting reading matter, as well as having given details of a worse state of af-fairs than had been known of by most of us. Whether the current revival will be productive of an early amelioration, or whether the distress will deepen as winter comes on, has yet to be demonstrated. It is estimated that there are at least 2100 puddling furnaces idle in different portions of the district, and that there have been thrown out of employ-ment in the North of England alone within the past three years the following large numbers of workmen: Coal miners, North umbrian, &c., district, 5075; ditto, South Durham, 5694; iron miners. Cleveland, 4000; lead, &c., miners, Northumberland and Durham, 10,000; blast-furnace workers, 800; manufactured-iron workers, 1500; railway and other laborers, 2000; making a total of 29,069 men. It does not follow that the whole of these have remained in the locality. Such is not the case, as large numbers of men who were attracted from the agricultural districts have since "returned to their muttons," and are again fol-lowing the plow.

EMIGRATION TO THE UNITED STATES

continues, but not on a large scale. Thirty engineers and machinists from Bradford have just left by the Lord Clive for Phila-delphia, and a Liverpool firm have received instructions from a firm in the Quaker City ately, the American house paying half passage money and guaranteeing three months' work at good wages. I don't think you will hear much more of miners' emigration hence

SCOTCH PIG IRON

is dearer, with a wild warrant market ls dearer, with a wild warrant market, larger shipments and a greatly reduced pro-duction. There are only 65 furnaces blow-ing in Scotland, against 92 this date last year. Stocks in Connal's stores, however, clude the stocks in makers' own yards. To-tal shipments this year have reached 355, oro tons, or 72,494 tons over last year. Ballast pig is now 39/ per ton alongside in Forth or Clyde. Importations into the

48/2, cash, closing at 48/6 P ton. On Tues-48/2, cash, closing at 48/6 \$\text{P}\$ ton. On Tuesday the price declined from 48/7½ @ 47/6, cash. On Wednesday the opening figure was flat at 47/3, improving however to 48/1½, cash, and closing at 47/9 \$\text{P}\$ ton. Yesterday a very large business was done from 47/6 @ 49/\$\text{P}\$ ton, closing at 48/9, cash, while to-day the price rapidly advanced to 50/1½, cash, closing with buyers at 49/6 and sellers at 49/7½ \$\text{P}\$ ton. Makers have further advanced their quotations, as may be observed from the undernoted: as may be observed from the undernoted : The shipments last week were 11,443 tons, as compared with 9,792 tons for the corres-

ponding wee	ek of	1878."	We quote:	
			No. 1.	No. 3.
G. M. B., at G	lasgo	W	50/	46/6
Gartsherrie,	4.6		54/	49/
Coltness,	6.6		58/	48/
Summerlee,	6.6		53/	47/6
Langloan,	9.6		52/	47/
Carnbroe.	* 66		54/	47/6
Calder, at Por	t Dur	idas	53/	47/
Hengarnock,	at Ar	drossan	53/	47/6
Eglinton,			50/6	48/
Dalmellington).		50/6	40/6
Shotts, at Lei			53/	48/6
	AT	MIDDLE	ESBORO'	

No. z Foundry ... All net cash and delivered f. o. b. at makers tharves in the Tees.

current figures for pig iron run as under :

American orders for pig and scrap last week are said to have amounted in the ag-gregate to about 20,000 tons.

A LARGE FAILURE

has occurred here during the week, that of L. Stevenson & Sons, Australian merchants, of I New Basinghall street, with liabilities set down at about £300,000. The firm was established in 1834, as "Stevenson, Leader & Co." In 1852 the present designation was assumed. The suspension is attributed to the general depression of trade. The house has chiefly carried on business in Manches-ter and general goods with the up-country Australian dealers, and has been "fixed' by the erection of large warehouses at Melourne, whereby much capital has been locked up. I know nothing of the especial circumstances of this particular case, bu I assume that other houses trading with the Antipodes have of late found matters rather trying. Some have, I know, had "their feet in hot water" and have caught cold " to a severe extent." The fact is the Australian markets are not capable of indefinite expansion with their present population.

Traders would do well to bear that in mind. DAMAGES AGAINST EMPLOYERS

vere for the first time raised at Birmingham on Friday last, under the important provisions of the new Factory Act. The defendants in the case were Messrs. Wilkes, Mapplebeck & Co., tube manufacturers, who were summoned for neglecting to fence a certain mill gearing, in consequence of which a boy had been killed. The act of Parliament, passed last year, requires all such gearing to be fenced, and one of its sections enacts that, should juvenile workers meet with fatalities through the neglect of their employers, the factory inspector for the district may summon the offenders and claim a penalty not exceeding £100 on behalf of the relatives or parents. The case was settled on payment of £25 as a compromise. Its bearing has caused no little consternation among owners of manufactories in the hard-ware and cutlery trades, many of those establishments being crowded with machinery, mill-bands, &c., entirely and absolutely unprotected. If the factory inspectors are ctive they may obtain a number of useful

there does, at length, appear to be a change for the better. I have letters which speak more hopefully of immediate prospects than for a long time past. My correspondents inform me that they are beginning to see

AT SHEFFIELD

land at last, and that the cutlery and certain other "light" trades are moving. They think that the long-promised revival has at i justly attribute the changed state of things to the enlarged demand which is invariably experienced toward the close of the year in most of the Sheffield trades proper. I am told that the business in steel, files, cutlery and general trade with the United States has become comparatively large lately, and that there are evidences which go to show that the aggregated transactions of the present year with your market only will prove a statilization of the states in the present year with your market only will prove a statilization of the states in the present year with your market only will prove a statilization of the present year with your market only will prove a statilization of the present year with your market only will prove a statilization of the present year with your market only will prove a statilization of the present year with your market only will prove a statilization of the present year. that the aggregated transactions of the present year with your market only will prove a startling contrast to the limited for old material, chiefly old rails and scrap turnover lie right ahead. One house has curable enable sellers at this end to just received from France by far the largest the material in the port of delivery know how this heavy indent has been made up, but I learn that its magnitude has done something to engender the suspicion that somebody or other has doubts of the future tariff relations between this country and France, and has begun to "load up" in anticipation of possible unfavorable changes. All things are possible, and I should not be surprised to find, sooner or later, that this pects. surprised to find, sooner or meer, that this is the case. As regards cast steel, there is a good call for special brands for engineering purposes, tools and other specific uses, but the commoner sorts do not move off in any bulk. I don't think I mentioned last week the rather sudden death of Mr. Montague Stevenson, of William Jessop & Sons, Limited. Mr. Stevenson had latterly Sons, Limited. Mr. Stevenson had facterly grown amazingly stout, albeit only 37 years old, and that, I hear, had something to do with his early demise. I believe the event does not alter the practical management of the concern in any appreciable degree.

AMERICAN COMPETITION

have arrived considerable numbers of machinists and boiler makers seeking employement, and it is said that many more are coming. In our judgment, this kind of voluntary immigration is altogether more desirable than the importation of workmen under contract. The men who come here seeking employment have less conceit and fewer "airs" than those specially imported. The latter are rarely content, with a contract which binds them to the repayment of their case money, and are almost always dis-

nails, tacks, lamps, lanterns, weighing machines. The "Wolverhampton and district" correspondent states that your competition is more formidable than that of any other nation. Your people's energy in Australia and South America is decidedly felt, and complained of by the South Staffordshire makers. Your lock makers, however, have lost their foothold, and your wall brackets and other light castings are longer purchased, their durability by questioned by the writer of the report. Sheffield correspondent speaks in similar terms as to the state and status of your con. petition. He seems to be of opinion that you are only formidable in what he terms "novelties." In Cleveland you wares don't seem to have made their appearance, and the Glasgow correspondent gives it as his deliberate conviction that you have made no progress whatever in Scotland during the past six months. Your harvesters and mowpast six months. Your harvesters and mowers have made some way, but your iron-mongery and general hardware have ap-parently retrograded. I give these excerpts precisely as I find them in the journal in question. It appears to me that it does American manufacturers no particular harm to have a certain amount of gratuting publicity, in a generic sense it is true, on this side. Were I asked for an opinion I should presume to say that your heavier wares have little or no prospect of securing firm hold of this market—unless, indeed, another frantic panic period such as 1871-3 should recur. Then anything would be possible. As to American steel I quote the following, which the Ironmonger says is penned by "one of the best known and most respected" local manufacturers Steel had been manufactured in the United "Steel had been manufactured in the United States for 25 years or more prior to 1875, but during those years the makers had not succeeded in establishing confidence in the quality of their steel among the large consumers of the best cast steel. The American steel was only generally used or considered suitable for common purposes, and the suitable for common purposes, and the makers of tools or implements which required a fine quality of cast steel invariably imported Sheffield-made steel. When, how ever, coal and iron and wages and profits were so greatly advanced in 1872-73, the price of Sheffield steel became so high that the buyers of it were induced to try the cheaper home-made article, and thus gave the makers of it the opportunity for which the makers of it the opportunity for which they waited and were quick to seize. After repeated trials they succeeded in producing a workable quality, and now our old cus-tomers tell us they are content to use homemade steel, and can do without ours. The same thing has occurred in many other de partments—infant trades have been strength ened, new ones established, old ones enlarged, until our former customers abroad not only supply their own wants, but are, to some extent, supplying ours. No doubt, when trade revives, this country will obtain a share of it; but rival industries are now so well established in many foreign States that we shall never recover the whole of our lost trade. Trade unions among the workmen, and a want of firmness and enlightened views among manufacturers, have contributed their share to produce the state of things to which I refer in our old established trades; but the last folly was the unwise action of all parties in grasping at too much in a time of prosperity.

THE TELEPHONE EXCHANGE IDEA

has at length taken firm root here, and is has at length taken firm root here, and is likely to extend throughout the whole country; indeed telephonic exchanges have already been announced for Leeds, Man-chester, Liverpool, Sheffield, Wolverhamp-Birmingham and certain other large centers of population. The promoters are centers of population. The promoters are not unlikely to meet with strenuous opposi-tion from the government postal authorities, who enjoy a monopoly of the telegraph lines of this country, and seek to include this quite new invention within the borders of

their old establised rights and privileges SOUTH WALES AND MONMOUTHSHIRE values of the past few years. Good judges also for new steel and iron rails. The low seem to think that several months' good rates of freight at which steamers are procurable enable sellers at this end to place period of its very old history. I do not know how this heavy inden has been made would get little, if any, of the present overguine hopes are held as to future pros-

Included in last week's shipments were 3060 tons of iron, of which 3000 tons was from Dowlais for Montreal. The tinwas from Dowlais for Montreal. The tin-plate works are going steadily along. Prices of these goods are well upheld, and that is certain to be the case with a continuance of the strong demand from your side.

THE METAL MARKETS

are all fairly strong, and late rates are generally maintained, save as regards tin, which has gone back a shade. Its backwardation, however, has not been formidable, and is unlikely to go further, the Cornish smelt ers being especially firm.

The Introduction of the Pig Boiling Process into the United States.—Mr. Edward Nock, a South Staffordshire man, who claims to have introduced the process of boiling pig iron into this country, has been giving its history to a reporter of a Western paper. He is now 77 years cld and has been 70 years at work in a rolling mill. At the time he began work, puddling on a sand bottom was the only method in use. As he tells the story, in 1819-20 a man in Wales invented a new method and applied it in one of the tin works. This new process of boiling was called the iron-bottom process, and better tin was made from the iron made in the new way. even this was not much better than the old way called puddling. About '29 the process of boiling was discovered by Joseph Hall, of Bloomfield, England. He kept his process a secret, but some of his men found it out and carried it with them over Europe. In the fall of 1836 Mr. Nock came to this country for the second time, and in 1837, at the new mill of Lawrence & Cuddy, at Pittsburgh, the first boiling furnace was built and the first pig boiling in the United

Special Notices.

PROBATE SALE

Factory, Machinery, &c.,

AT SOUTH NORWALK, CONN. Pursuant to an order of the Court of Probate for the District of Norwalk, will be sold at public

for the District of Norwalk, will be sold at public sauction on tober, 1879,

At 12 o'clock forenoon (unless previously disposed of at private sale), the valuable real estate lately belonging to the Norwalk Iron Works Company, and also all the Tools and Machinery, Boilers and Engines, Shafting and Belting, Foundry, Furnace and Cranes, all in running order and suitable for a first-class machine shop of large capacity; also Patents and Patterns of Steam Engines and Pumps. Said real estate adjoins the track of the N. Y., N. H. & H. R. R. Co., and has a convenient dock on Norwalk Harbor. The subscriber has been specially authorized by said court to make said sale.

Sale to take place on the premises. Terms and conditions made known at time of sale.

SOUTH NORWALK, Sept. 4, 1879.

AUCTION NOTICE. BISSELL & WELLES, Auctioneers,

Friday, Oct. 17th, at 10 o'clock, At 83 Chambers and 65 Reade Sts

At 83 Chambers and 63 Reade Sts.

Regular sale of Hardware and Cutlery. Also, at 12 o'clock, Peremptory Sale of over 1500 kegs Nails asst. as follows: About 100 kegs Slate Nails, asst. 2d., 3d. and 3d.; about 100 kegs Box and Casing Nails, asst., 6d., 13d.; about 500 kegs Clinch Nails, asst., 29 and 3 in; about 300 kegs Finishing Nails, asst., 29 and 3 in; about 300 kegs Finishing Nails, asst., 6d. and 13d.; about 470 kegs Brad Heads Nails, asst., 6d. and 13d.; about 230 kegs Common Nails, asst., 3d. and 6dd.; about 250 kegs Spikes, asst., 3, 3/2, 4, 6/2, 7 in.; also, about 12 tons Best Crucible Cast Steel.

Special Notice.

Having recently increased our facilities, we beg leave to call your attention to the fact that we are now prepared to do all kinds of general Machine Work, both light and heavy making REPAIRS TO CORLISS

Steam Hammers and Blowing Engines,

Steam Hammers and Blowing Engines, and reface Slide Valves with a new and greatly im proved apparatus. Employing none but the best of help in this branch of our business. we can confidently assure our customers that their interests will be promptly and faithfully attended to. We man ufacture a PATENT SPRING PISTON PACKING, which has been in use for some 10 years past, giving the best satefaction. We make and furnish the Elliptic Spring when desired. We make and furnish the Elliptic Spring when desired. We have on hand & different sizes of Piston Rings and Piston Head Patterns. sizes of Corliss Valve Patterns. All scor teed. Illustrated circulars sent on application L. B. FLANDERS MACHINE WORKS, No. 1025 Hamilton St., Philadelphia, Pa.

PATENT CONCAVE FORGED

SHOES The only perfectly fitting Shoe, and the best

GREENFIELD TOOL CO.,

Greenfield, Mass

For Sale.

Established light Hardware Manufacturing Business in this city, making some 20 staple light articles, paying a profit of 40 per cent. Can show list of largest houses as customers. Part pay taken in goods to be made. Owner in another kind of business that takes all his time, the resson for selling. Price, \$2200; favorable terms; or a first mortgage on real estate taken for it.

Address

189 Sixth Avenue, Brooklyn, N. Y.

FOR SALE OR TO LET.

A valuable Iron Mining Property, near Dover, Morris County, New Jersey, on very favorable

For particulars address

Care Post Office Box 4004 New York City.

POR SALE OR TO RENT.—The valuable property known as Mount Penn Charcoal Furnace, including 120 acres good farming land, situated about 3 miles from Reading and 1 mile to W. N. R. R. Ore convenient and wood in abundance, having ample facilities for shioping product to market. The above Furnace having the reputation of making one of the best from in the market when in blast. Address, GEO. SHALTER, Reading, Pa.

WANTED.

Employment here or elsewhere, in any useful capacity, by a man of ability and approved character, experienced in manufacturing and mercantile business. Is a capable office and business manager, cachier, accountant, correspondent and indoor salesman. Has been connected with the Iron and Hardware trade. Satisfactory reference. Address,

Office of The Iron Age, 83 Reade St., New York.

WANTED. A Good Hardware Store.

Address, with particulars and terms,

Lock Box 34, Lebanon, Pa

JUST PUBLISHED-SENT FREE. Complete History of Wall Street Finance, containing valuable information for investors. Address Baxter & Co., Publishers, 17 Wall street, New York.

Special Notices.

EXECUTORS' SALE OF AN Anthracite Blast Furnace.

THURSDAY, October 16, 1879,

all that certain Anthracite Blast Furnace, located in the Borough of Glendon, about two miles from Easton. The tract of land contains about 52 acres, and lies between the Lehigh Canal and Lehigh River, just below the Chain Dam, adjoining Glendon Iron Company's furnaces. The furnace erected thereon is a sheet iron casing stack. 14% feet bosh by 70 feet high, with closed top; I. P. Morris & Co. 's low pressure condensing engine, 8 boilers, 2 Kent's not-blast ovens, casting house, engine house, steam hoist, &c. Also 11 good tenement houses, large sfore, two stables and a blacksmith shop. The furnace buildings are of brick and stone and put up in the best manner, with all the modern improvements. The works were built in 1871, and are in good order and nearly ready to blow in. Stock can be supplied by boats on Lehigh and Morris Canals or Lehigh Valley Railroad. Hematite ores can be delivered to the furnace for \$2.65 per ton and limestone for 30 cents per ton.

The terms and conditions will be made known on day of sale by S. L. UHLER,
Sale positive to close up the estate. Executors.

Rolling Mill for Sale.

The Real Estate, Machinery, Fixtures and Tools of the PORTLAND ROLLING MILLS will be sold at public auction, without reserve, to the highest

TUESDAY, September 30, 1879, At 3 o'clock P. M.

At 3 o'clock P. M.

The property of the company consists of 69 acres of land on tidewater, in the town of Cape Elizabeth, Cumberland County, within ten minutes' drive of the city of Portland. Besides the mill buildings the company owns 53 tenements in 28 buildings, one hall used for church purposes, two stores and a thoroughly well fitted office, with fire-proof vault and all modern improvements. All the buildings are in good repair.

The Mill contains one 10-inch train, and one 18-inch train, with all the machinery appertaining to the manufacture of rails and bar iron. Its capacity is 14,000 tens of iron rails or 600 tons of merchant iron per year.

ity is 14,000 tons of fron raiss or occurrent fron per year.

The property is provided with a thoroughly built wharf, at which vessels of 800 tons capacity can lie at low water, and is directly connected by rail with all the railroads centering at Portland.

The mill is now in active operation, but possession will be given about the 15th of October, 1379.

PHILIP HENRY BROWN, President, Portland, Maine.

Special Notice.

Hardware Manufacturers Exchange,

43 Chambers Street, New York.

The undersigned desires to inform all Manufacturers of Hardware throughout the United States that he has fitted up rooms, centrally located, well lighted, &c., running through from Chambers to Reade street, for the exhibition of manufactured goods in all lines of hardware. Any manufacturer can at a small annual cost exhibit his wares to actual buyers throughout the year, and all visitors can examine them free.

The advantages to both manufacturers and buyers are too apparent to need any explanation. For further particulars and application for space address

W. G. FULTON, Manager.

W. G. FULTON, Manager.

Hardware Patterns for Sale. Hardware Patterns for Sale.

Embracing a full line of Hat and Coat Hooks, Pullies, Grindstone Fixtures, Turnbuckles, Boits, Well Wheels, Thumb Latches, Casters, Brackets, Drawer Fulls, Sash Fasteners, Each Lifts, Shutter Bars, Cupboard Catches, Latches and Turns, Flush Boits, Stove Door Handles, &c. These patterns are all in complete order, ready for immediate use, and cover the entirs line of general Hardware lately manufactured by us. Also the Hardware patterns and patents purchased from the Jud Manufacturing Company a short time since. We have, woodcuts and price lists of the various articles. Having leased our works for a series of years, we offer these patterns in the whole or in part, at low rates on easy terms of payment. Under the terms of our lease they can only be sold for use west of the Allegheny Mountains. For terms and further information apply to KEYSTONE HARDWAKE MFG. CO., Reading. Pa.

Wanted,

Several manufacturers to join the advertiser in sending a traveler into Central America. By joining this pool you will be represented by a first-class man and at a small expense. This is a good opportunity for parties wishing to introduce their goods in foreign markets.

Address for three days

C. A.,

Office of The Iron, due to Reade Street, N. V.

Office of The Iron Age, 83 Reade Street, N. Y.

FOR SALE.

Stove and Hardware stock, fixtures and busines in one of the best towns on the Hudson River From \$4000 to \$5000 required. Satisfactory resons for selling. A rare chance.

HARDWARE

Office of The Iron Age, 83 Reade st., New York.

FOR SALE.

First-Class Retail Hardware Store On one of the principal streets. About \$2000

New stock. Address, J. G. BRENNER, SON & CO.,

21 N. Fifth st. Philadelphia

SITUATION WANTED by a first-class double entry bookkeeper and

correspondent. Moderate salary expected.

The advertiser has had many years' factory experience. Address

WM. HARNETT.

234 East 29th St., New York

A N EXPERIENCED Mechanical Draughtsman accustomed to heavy rolling mill work, can find employment for a few months by addressing A.B.,
Office of The Iron Age, 83 Reade St., New York.

WANTED—The exclusive services of an engineer, or otherwise, of sterling integrity energy and sobriety, who has large experience in the construction and management of coke furnaces. Undoubted references required.

Address P. O. Box 33. Philadelphia, Pa.

FOR SALE OR RENT. -The Pequest furnace and 200 acres of ore and limestone; land can be sold or leased at a reasonable price. E. DALLETT HEMPHILL. Lock Box 26, Allentown, Pa. Special Notices.

PARK BENJAMIN'S OFFICE,

37 Park Row, New York.

Examines and reports on the novelty of inven ons. Furnishes recipes and information on all indus rial processes.

Prepares drawings and engravings of machinery
Tests, designs, constructs and selects machinery.

Address,

G. H. BENJAMIN, Business Manager

FOR SALE.

A valuable property in the State of Wisconsin, free from all incumbrances, embracing an inexhaustible deposit of Iron Ore and about 900 acres of land, of which about 900 acres are covered with a heavy growth of large oaks and other hardwood timber. The ore is rich and free from even a trace of phosphorus. The facilities are unusually favorable for the manufacture of a superior quality of Charcoal Iron, and as cheap, if not cheaper, than can be manufactured elsewhere in the United States.

It is on the line of one of the leading railroads of the State, and is accessible to all Mississippiorts and the lakes.

The veins or mines are to a certain extent developed, and had been successfully worked for some time.

oped, and had been successfully worked for some time.

The greater part of the land would be well fitted for farming purposes, as the ground is very fertile, and the price asked for it will not exceed that asked for common farming land. Property in New York City or vicinity will be taken in ex-change.

For information apply to or address the pro-prietor,

JULIUS W. HAAS. Dubuque, Iowa.

Or EDWARD MULLER, Care BigeLow & Co., P. O. Box 135, Newark, N. J.

FOR SALE OR LEASE A MANUFACTURING ESTABLISHMENT

IN SCRANTON, PA.

IN SCRANTON, PA.
On corner of two main streets, only one-quarter mile on level road from two railway stations. Size of lot 50 by 150 feet; main building, 30 by 100 feet; engine, 33-horse power. Buildings and machinery first-class and nearly new.
Underlaid and surrounded with coal, the cost of fuel for steam is merely nominal. Best forge coal \$1.50 per ton. With complete lines of shafting, &c., the premises can be easily and cheaply adapted to any light manufacturing business.
Former proprietor, after successfully manufacturing Axes and Edge Tools in the vicinity for 30 years, designed and built this shop at an expense of \$10.000 for the continuance of the business, but failed during the late depression.
Having neither time nor ability to run these Having neither time nor ability to run the works, I will sell very low on easy terms.

Address.

AMBROSE MULLEY, Providence, Lackawanna County, Pa.

For Sale.

THE ROUGH AND READY HOT BLAST CHARCOAL FURNACE

situated in one of the healthiest regions of Tennessee, with all its modern improvements, including a 30 horse-power engine, and two 40 feet boilers. The turnace is in close proximity to inexhaustible supplies of rich brown hematite ore and limestone, and the rail and river shipping facilities are excellent. Iron can be manufactured for not exceeding \$18.00 per ton, and put into market within 24 hours. Furnace can be put into market within 24 hours. Furnace can be put into market within 25 hourses acres of fine timber land, (including 1500 acres which are improved and under cultivation) a Saw and Urist mill with a 12 horse-power engine flue boiler, Carpenter and Blacksmith shops, Stables and Cribs, Coal, Engine, Cinder, Casting, Tool, Store and Ware, and about 60 Dwelling Houses. It is the wish of the undersigned to sell only the whole of this property, which can be bought on reasonable and liberal terms. For further particulars

D. THEOBALD, Youngstown, Ohio A. GUCKENHEIMER & BRO. 93 First Avenue, Pittsburg, Pa

EXPERIMENTAL MACHINERY

Developed and Perfected. Special attention given to requirements of HARDWARE MANUFACTURERS.

Address for information and terms. RICHARDS & DOLE, Springfield, Mass.

WE QUOTE FOR Steel or Iron Rails, Steel Tires, Axles, Forgings, Bars, Plates,

Nail Sheets Billets, and all Steel goods f o. b. any British port, or c i. f. any United States port. Thirty years' experience in the Steel Trade.

NIXON BROTHERS, Newcastle-on-Tyne, ENGLAND.

A New Ax Factory For Sale at Half Cost. Built with all modern improvements and at panic prices in 1876. Building, machinery and engine all complete, in first class order, ready to start; capacity about 150 dos. axes or tools per day. Both steam and water communication with coal mines, New York and the West. Coal landed in bins from canal with out cartage. Location in great iron manufacturing center. Address A. M. HANNON, Cohoes, N. Y. Ord. H. FARNONS, Provident Life Immrance Co., Western Union Huilding, New York

Mining & Manufacturing **Property**

For Sale or To Let.

A valuable property in New Jersey, at a railway A valuable property in New Jersey, at a raiway station, consisting of rich Hron Mines, unexcelled Water Power, large Factory and Farm. Will sell all or part, or lease the Factory with Machinery, or the Mine. For particulars apply to

THOS. H. STOUT,
79 Cedar St., New York.

Wholesale Cutlery.

A favorable opportunity is offered to an active man, with a capital of at least \$25,000, to take the place of a retiring partner in a leading Cutlery business in one of the principal Western cities. For particulars address H. W. P. O. Box 96, New York.

Special Notices.

JOHN E. SWAN & BROTHERS. SCIENTIFIC EXPERT IRON MERCHANTS.

Glasgow and Middlesbrough, Exporters of all brands of

Scotch & English Pig Iron.

c. f. i. to America and f. o. b. British ports

Old Iron Rails, Puddled Bars AND MANUFACTURED IRON.

Rolling Mill Property for Sale. Eight contiguous pieces of ground in the borough of Columbia, Lancaster county, Fa., containing together about 15% acres, upon which are erected a Rolling Mill, with necessary machinery for manufacturing railroad iron, &c.; a one-story brick office; a one-story frame office; ten two-story brick dwelling houses; two frame dwelling houses; a brick machine shop and foundry; frame blacksmith shop; frame barn and other improvements.

The above property is conveniently and eligibly ituated on the line of the Fennsylvania Railroad, and is well worth the attention of fron manufacturers. For particulars apply to H. M. NORTH, Columbia, Lancaster Co., Pa

WANTED.—A partner in an established foundry and Machine Shop near Philadel-phia. One who can furnish work preferred to one investing capital. Best references given and required. Apply to d. Apply to GENDELL & REEVES, Attorneys, No. 631 Walnut Street, Philadelphia, Pa.

Combined Shear, Punch, Upsetter

and Bender, REED & BOWEN'S PATENTS.

Parties having standard articles and wishin pecial agency would do well to correspon special agency with us.
STANDARD MANUFACTURING CO.,
107 Liberty street, New York.

FOR SALE.

Boiler, 150-horse-power engine, 200-horse-power-and other smaller sizes. Also machinery for roll, ing steel tires complete. Machinery for making ice with the greatest economy. One steam canal boat warranted the best ever invented. Two large geared foundry ladles. All modern build. Apply or address

LESLIE, 70 Pearl street, Jersey City

TO IRONMASTERS,—Wanted a situation
as Rolling Mill Manager by a practical man.
Has held similar position before 2 years in one
place. Can give good references. Address,
SAML. T. HODGKINS,
2508 Ætna street, South Cleveland, Ohio.

To Manufacturers of Iron for Steel Purposes.

DUPUY'S DIRECT PROCESS Produces bars direct from ore, in one heat, at locost, in ordinary Reverberatory Furnaces. It indorsed by steel manufacturers to be equal best Swedes iron for high grades of steel.

For information apply to

P. S. JUSTICE, No. 14 North Fifth Street, Philadelphia

Blast Furnace for Sale or to Lease. Situated on the Hudson. Size, 16x60, with firstclass blowing machinery, ovens, tools, &c. The
location for transportation of stock to the Furnace and iron to the market is most excellent.
There is a fine dock and good appliances for handling material. Iron can be made here very low,
and at present prices at a good profit.

PANCOAST & TARR,
28 Platt St., New York.

FOR SALE.

Hardware Stock and Fixtures in one of the best owns in Nebraska. Will be sold low for satisfac tory reasons. About \$2500 required. A splendid Address.

HARDWARE, Box 21, Lincoln, Neb.

FOR SALE.

Rail or Bar Train complete, with rolls for rolling rails from 12 to 65 lbs., and also for all sizes of bar iron, flats, rounds and squares, in perfect condition, having been in use for a short time only. itton, having been in ...
For terms, &c., apply to J. M. BROWNSON J. M. BROWNSON Treashurgh,

P. O. Box 748, Pittsburgh, Pa.

WANTED.

of fine light

Situation as Sale-man, Business Manager or correspondent, by a gentleman who has been connected with a large rolling mill for many years, and has an extensive acquaintence with the merchants and consumers of iron throughout the country. Address,

CALESMAN

Office of The Iron Age, 77 4th ave., Pittsburgh, Pa.

HARDWARE STORE FOR SALE. In Dover, N. H., to Close an Estate.

The old established Hardware Store of G. F. ROLLINS & Co., with a well-selected stock of \$8000 to \$9000, and a good run of custom.

WM. H. ROLLINS,

Administrator.

DOVER, N. H., Sept. 4, 1879.

SITUATION WANTED—In wholesale or first-class retail business. A thoroughly competent hard-working man, long connected with and referring to first-class well-known city houses, desires a position. Is posted in builders' and general hardware; is a competent bookkeeper and good salesman. No objection to leave the city. Address for reference and full particulars.

WILLIAMS, P. O. Box 1218, New York City.

A THOROUGH SALESMAN, with many years' experience on the road, and a good acquaintance with the Hardware Trade both East and West, is open for an engagement. Could invest, if desired, a few thousand dollars in a sure and good thing where the man is needed more than the money. Speaks German. Please address "FRITZ."

Office of The Iron Age, 83 Reade St., New York.

TOR *ALE.—A complete establishment for the manufacture of Bolts and Nuts. A commoditions brick building covered with siste. A large lot of ground with railroad track. A good steam engine and boiler. Counter-shafting, belts, punches, bolt cutters, lathes, radial drills, taps, dies and everything in complete order for business. Will be sold at a bargain. Inquire of GEO. S. CAPELLE, or ALLEN GAWTHROP, Wilmington, Del.

Sanderson Bros. Steel Co. er of shares for sale by EDWARD FRITH & SON, 241 Pearl street, New York.

Special Notices.

One 16-inch Train Holls,
With Housings and Bed Plate.
One Steam Hammer,
One Pair Shears,
Three Large Steam Pumps,
Three Small Steam Pumps,
One Holsting Engine,
Three Steam Boilers,
One Lighthall Condenser,
One Lighthall Condenser,
Low Pressure Gauges, Registering
Gauges, &c.

FOR SALE BY

DANIEL W. RICHARDS & CO.,

Scrap Iron & Metals,

88 to 96 Mangin St., New York. Fifty Cents. Price JUST ISSUED.

SECOND EDITION OF LEIGH'S Discount Book,

with a Guide Page added, by which any desired table can be referred to instantly, without turning a leaf or wasting a moment.

This edition is handsomely bound in cloth, and will be mailed to any address upon receipt of the price so cents. price, 50 cents.

Bound in leather, with silicate leaves, price \$1.

EDWARD B. LEIGH,

St. Louis Elevator, St. Louis, Mo. Or either of the Publishers, viz: IVISON, BLAKEMAN, TAYLOR & CO., New York, R. & T. A. ENNIS, St. Louis.

JOHN R. WHITLEY & CO.,

European Representatives of First-Class American Houses,

FIRST-CLASS AGENTS IN THE

Principal Industrial and Agricultural Cities and Centers of Europe. TERMS ON APPLICATION.

LONDON, PARIS, 7 Poultry, E. C. 8 Place Vendome.

THOS. TURTON & SONS. Successors to WM. GREAVES & SONS,

Steel, File and Railway Spring Manufacturers. SHEFFIELD, ENGLAND,

desire to give notice that they have removed their 102 John Street, New York, 40 Kilby Street, Boston, where their American interests will be in futu-under the management of MR. ALEX. A. ARTHUR.

The Sherman Process Co.

9 Pemberton Square, Boston, Mass., Issue Licenses to use the Process for the

Manufacture of Iron and Steel In the Bessemer Converter, Crucible, Siemens-Martin, Puddling, Blast and Cupola Furnaces.

The use of this Process improves the quality of the product, saves fuel and labor, and does not require any change in furnace or manner of working See page 17 of The Iron Age of Oct. 25th, 1877.

Price

No. 97 Chambers Street, No. 97 Chicago, A. F. SHAPLEIGH & CO., St. Louis, and R. W. BOOTH & CO., Cincinnati, O.

TO LARGE CONSUMERS

MALLORY, WHEELER & CO., Valve Refitting Machines.

All users of Globe Valves should have one. Send for circular and price list. A few good agents wanted to sell on commis

GRISCOM & CO., Pottsville, Pa.

CALIFORNIAN AGENCY.

A San Francisco firm of File and Tool makers aving an agent constantly traveling among the consumers in the State and West Coast, is desirous of representing some first-class Eastern Houses in the manufacturing hardware trade

San Francisco, Cal. TO MANUFACTURERS AND CAPITALISTS.

FLOWER PINS. PATENT FOR SALE.

Address

J. H. PLUMMER, 1276 Pacific Street, Brooklyn, N. Y. FOR SALE,

Job Lots and Bankrupt Stocks Hardware.

Great bargains offered to the trade. A. W. WHEELER,

141 Lake St., Chicago, Ill.

Trade Report.

Office of The Iron Age, Wednesday Evening, October 8, 1879.

The past week has been one of healthy ac tivity in the financial markets. Money has continued firm and in active demand at one eighth of 1 % per day and 7 % per annum, declining toward the close to 4 @ 5 %. The gold receipts this week from foreign sources amount to \$2,229,600. At the annual meeting of the Clearing House Associa tion yesterday, it was resolved that the issue of gold certificates of deposit by the Bank of America, these to be used in settlements at the Clearing House, be resumed. This is returning to the custom which prevailed up to 1862. The reason for this action is that it is more convenient to deposit the gold in a bank having large and secure vaults and to use certificates of such deposits, than it is to carry the gold in bags every day to and from the the Clearing House. This action has become necessary on account of the abundance of gold coin by reason of the large importations and the disbursements by the Treasury of gold coin in payment of called bonds

Government bonds have been steady and active, with prices a fraction higher, as will be noticed in the table published below giving the closing quotations. Railroad bonds have been active and higher, Erie leading.

The stock market has been very active and strong, with Erie shares the feature of chief interest. After Erie, the most active stocks have been D. L. & W., Pacific Mail, Iron Mountain, Union Pacific, Delaware and Hudson, Wabash, Kansas and Texas, Northwestern, St. Paul, and Lake Shore. We give below the closing quotations of active

The bank return shows a decrease of \$2,306,925 in surplus reserve, which now stands at \$262,425, against \$7,436,050 at this time last year, and \$8,490,350 at the corresponding period in 1877. The loans show a gain this week of \$5,600,600; the specie is up \$131,700; the legal tenders are decreased \$1,954,200; the deposits other than United States are up \$1,937,700, and the circulation is increased \$400,500.

The following is an analysis of the bank totals of this week compared with that of

-Idde week				
	Sept. 27.	Oct. 4.	Com	parisons.
Leans	\$260,763,700	\$266,364,300	Inc.	\$5,600,600
Specie	20,017,400	20,149,100	Inc.	131,700
Legal t'nd're	40,047,700	38,003,500	Dec.	1,054,200
Tot. reserve.	60,065,100	58,242,600	Dec.	1,822,500
Deposits	229,983,000	231,920,700		8,937,700
Reserve re-			_	
quired	57-495-750		Inc.	484,425
Surplus	2,569,350	262,425	Dec.	2,306,925
-Circulation.	21,531,900	21,932,400	Inc.	400,500

of New York since our last issue are shown in the following tables:

For the week	k ended O	ctober 4:	
Dry goods General mdse	1877. \$1.378,679 4.351,090	1878. 81,274,809 5,919,693	1879. \$2,244,144 5,097,514
Total for week. Prev. reported	\$5,729,769 249,400,542	\$7.194.508	\$7,341,65 239,954,12
	-	A 0 -	

Since Jan. 1....\$255,130,311 \$221,908,380 \$247,295,780 their revised Lock List. Owing to the pres Included in the imports were items of merchandise valued as follows:

	Quantity.	Value.
Auvils		\$1,061
Brass goods	23	4,373
Bronzes	24	5,693
Copper		9.738
Cutlery		25,815
Guns	105	16,777
Hardware	37	1,179
Iron, hoop, tons		1,683
Iron, pig, tons		46,408
Iron, sheet, tons		8,349
Iron, Railroad bars		32.744
I. cotton ties		20,992
Iron ore, tons		3,691
Iron, other, tons		104,536
Lead, pigs		3,678
Metal goods		17,075
Nails		3,891
Needles		11,554
Nickel		3,236
Old metal		2,358
Platina		иби
Plated ware		. 49
Percussion caps		4,836
Saddlery	10	1,979
Steel	1,918	16,737
Silverware	0	490
Tin, bxs		108,935
Tin, 200 slabs		2,477
Wire	10	1,147

EXPORTS, EXCLUSIVE OF SPECIE.

For week ended Octo	ber 7:	
1877. For the week \$6,373,639 Prev. reported 209,548.035	1878 \$7,183,567 261,444,405	1879. \$9,420,882 251,873,907
Since Jan. 1\$215,921,674		\$261,294,789

For the week ended October 4:

Total since Jan. 1, 1879 \$4	4,273,663
Government bonds at the close	were
-quoted as follows:	
Bid.	Asked.
U. S. Currency 6's121	124
U. S. 6's 1880 registered	104%
U. S. 6's 1880 coupon104	1041/4
U. S. 6's 1831 registered	105%
U. S. 6's 1881 coupon 105	105%
U. S. 5's 1881 registered 102	1021/8
U. S. 5'8 1981 coupon103	103%
U. S. 414's 1891 registered 10536	105%
U. S. 41/2's 1891 coupon 1053/2	105%
U. S. 's 1907 registered 102	10218
U. S. 4'8 1907 COUPOH 101%	103

The following were the closing que	otations
of active shares:	Asked.
Alton and Terre Haute	37
American District Telegraph 66 Atlantic and Pacific Telegraph 35½	661/4 351/4
Burlington and Quincy. 114 S	70%
Canton	481/2
Cleve., Col., Cin. and Ind 60	6014

	Chicago and Alton 051/	
	Chesapeake and Ohio	
	18t Pref 2014	
	5 1 × 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
,		
	Delaware and Hudson Canal 631/8	
	Express—Adams	
	A.III.C. 10811	
	United States 511/2	
	wells, rargo & Co102	
- 1	Erie 381/2	
	" Pref 63½	
-	Harlems56	
8	Hannibal and St. Joseph 291/8	
	Frei 58	
-	Illinois Central911/4	
	Ind., Cincinnati and Lafayette 71/2	
1	Kansas Pacific 731/2	
-	Kansas and Texas 211/4	
1	Lake Shore 95	
٠,	Louisville and Nashville 63%	
- 1	Michigan Central 8734	
. 1	Morris and Essex 95	
	Mobile and Ohio 16	
9	New Jersey Central 635/8	
	Northwest 855/8	
1	Pref	
	Northern Pacific	
.	Pref 523%	
١.	Ohio and Mississippi	
н	Frei \$1	
1	Pacific Mail	
4	Panama166	
1	Rock Island and Pacific	
ı.	St. Louis and Iron Mountain 465/8	
ı	St. Louis Kansas City Northern 2634	
1	Frei 03/2	
1	St. Louis and San Francisco 181/2	
1	Pref 22	
	ISE DPPL ACS	
1	St. Paul 72	
1	" Pref 98	
1	Sutro Tunnel	
1	Union Pacific 87%	
1	Wabash 4558	
ĺ	Western Union Telegraph 9334	
1		
1	-	

GENERAL HARDWARE.

There is little, if any, change to note in the ondition of the Hardware market since our last writing. Prices continue unsettled, and advances are of such frequent occurrence that quotations in many lines of goods are withdrawn altogether, and are only given on application. During the week, notices of withdrawal of quotations have been issued by the following manufacturers:

Sidney Shepard & Co., Buffalo, N. Y. J. Lloyd Haigh, New York. John Toler, Sons & Co., Newark, N. J. C. T. Draper & Co., Sing Sing, N. Y. The Nason Mfg. Co., New York. Richardson Bros., Newark, N. J. Otsego Fork Mills, Girard, Pa.

Penfield Block Works, Lockport, N. Y. On the 4th inst. the manufacturers of Coffee Mills advanced prices from discount 25 per cent. to discount 20 per cent.

A meeting of the makers of German Snaps was held in this city to-day, at which the price was advanced to discount 60 per cent. to the regular trade.

The Dibble Mfg. Co. inform us, under

date of 7th inst., of an advance of 20 per cent. on the price of Hemacite Door Knobs The Stamped Ware Manufacturers' Association of the United States have advanced the price of Common and Deep Plain and Retinned Ware to discount 15 per cent. This advance went into effect on Monday, The foreign trade movements at the port 6th inst. At the same time the following goods were advanced: Polished Fry Pan

to discount 50 per cent.; Round and Oval Hammered Bake Pans to 17 cents per lb.,

net; Oblong and Square Favorite Bake Pans to 14 cents per lb., net. The Reading Hardware Co. have issued, under date of the 1st instant, a new dis count sheet, to apply to their 1877 cata logue and supplement of 1878. They have also issued, under date of September 20, sure of matter on our columns, we are un able to present their lists and discounts this

week. Heaton & Denckla, Philadelphia, Pa. have issued a list of their stock of English Traces and other Chains, Anvils, &c., manufactured by Samuel Lewis & Co., and which they will close out at reasonable figures.

The Atlantic States Nail Association, at their meeting in this city on Thursday last, advanced the card rate to \$3.60, net. At this price the market is firm. Stocks continue light, with assortments, as a rule broken. We quote 10d. to 60d. \$3.60 net for lots of 100 kegs and upward. Small parcels are quoted at an advance of 15 to 25 cents per keg.

The E. Stebbins Manufacturing Company, Springfield, Mass., have issued, under date of 1st inst., a revised price list of their 'Brightwood Compression Work," which we print below. This list is subject to discount 40 per cent. PRICE LIST BRIGHT COMPRESSION WORK,

Plain Bibbs.

doz.......... \$9,00 z1.00 Plain Bibbs, Screw Shank and Shoulder, Per doz.....\$10.00 Hose Bibbs. doz..........\$10.00 12.00 Hose Bibbs, Screw Shank and Shoulder. 1/3 3/8 \$11.00 11.00 Wash Tray Bibbs, Straight. Per doz......\$10 00 Wash Tray Bibbs, Straight, Flange and Thimble, Per doz......\$14,00 17.00
No. 1½ Comp. Basin Cocks.

Brass. Nickel Plated. Per doz\$14.00 The Tack Manufacturers' Association have issued, under date of 4th inst., the following discounts, to apply to the hardware list of May, 1878:

	,,-										D,		00	nt	
wedes									a	114	1	L	n.c	0	
Tacks					 		 	10						- 50	ò
swedes	Iron T	inne	d Ta	icks			 					. 5	od	CRC	2
Commo															
lopper	Tacks	and	Nai	8	 		 							. 50	à
Commo															
Leather	red Car	pet.			 	0 0	 	٠			0 0			-45	į

4	Finishing, Trunk and Clout
8	Above discounts subject to change without previous notice.
8	We invite attention to the advertisemen

of Bissell & Welles, on the 16th page. They o'clock, at their salesrooms, Nos. 83 Chambers and 65 Reade streets, 1500 kegs of Nails and about 12 tons Best Crucible Steel. The assortment of Nails will be found in the advertisement.

in Central America, will learn of an oppor-tunity by referring to the advertisement signed "C. A.," which appears on the 16th

Van Wagoner & Williams have advanced the price of Gem Door Springs to 10 per cent. from list, and Domestic Blind Adjusters to 20 per cent. from list. They will shortly issue a new price list of the goods of their manufacture.

In our last issue we published the advances in list prices of some of the leading Lock manufacturers, since which we have received the following :

Norwich, Conn., Sept. 29, 1879. We this day advance list prices as fol-\$1.10 No. P. \$1.65 No. Y. \$3.10

2.55 "R. 1.75 "1000. 1.05

2.65 "S 2.75 "1015. 1.95

1.40 "T 2.85 "1020. 2.70

1.05 "W. 3.00 "1035. 2.70

Prices subject to change without notice. All orders subject to rates ruling on day of shipment. Norwich Lock Mfg. Co.

The Union Mfg. Co. have issued the following discount sheet:

New Britain, Conn., Oct. 1, 1879.

Dear Sirs: We beg to inform you that
we have this day made the following changes in discounts of Butts:

in discounts of Butts:

Cast Narrow Fast Joint Butts, Drilled and Wire Jointed, No. 80.

Cast Broad Fast Joint Butts, Drilled and Wire Jointed, No. 82.

Cast Narrow Loose Joint Butts, Drilled and Wire Jointed, No. 82.

Cast Narrow Loose Joint Butts, Drilled and Wire Jointed, No. 83.

Cast Broad Loose Joint Butts, Drilled and Wire Jointed, No. 84.

Cast Parliament Butts, Drilled and Wire Jointed, No. 84.

Cast Parliament Butts, Drilled and Wire Jointed, No. 85.

Jointed, No. 85.

Jointed, No. 85.

Jointed, No. 85.

Japanned Loose Joint Butts, without Acorns, No. 504.

Japanned Loose Joint Butts, with Japanned Tips, Nos. 55, 58 and 88.

Japanned Loose Joint Butts, with Silvered Tips, Nos. 56, 59 and 89.

Japanned Fast Joint Butts, with Japanned Tips, Nos. 56, 59 and 89.

Japanned Fast Joint Butts, with Japanned Tips, No. 60.

Japanned Fast Joint Butts, with Japanned Tips, No. 60.

Japanned Fast Joint Butts, with Japanned Tips, No. 61. No. 60. 40&10
Japanned Fast Joint Butts, with Japanned Tips, No. 61. 40&10
Japanned Fast Joint Butts, with Silvered Tips, No. 62. 40&10
Japanned Fast Joint Butts, With Tips, No. 63. 40&10
Figured Loose Pin Butts, with Tips, Nos. 63
and 60. 50&10
Figured Loose Pin Butts, with Japanned Tips, Nos. 64 and 61. 55&10
Figured Loose Pin Butts, with Silvered Tips, Nos. 65 and 62. 55&10
Figured Loose Pin Butts, without Acorns, No. 66. 50&10
Figured Loose Pin Butts, without Acorns, No. 66. 50&10
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Figured Loose Pin Butts,

change without notice. Yours respectfully
UNION MANUFACTURING Co.,
Warehouse, No. 98 Chambers st., N. Y. We have received the following circular showing the discounts adopted by the Pump

Manufacturers' Association at a meeting

held in Chicago, Ill., on the 1st inst. : Office of W. & B. Douglas, Middletown, Cons., October 3, 1879. At a meeting of the Pump Manufacturers Association of the United States, held at Chicago, Ill., October 1, 1879, the following

prices were unanimously adopted :

Dis. per cent

Respectfully soliciting your orders, we re-Respectfully source, main, very truly yours, W. & B. Douglas.

The Charles Parker Co., Meriden, Conn., Page a circular to the Hardware trade under dat of 2d inst., say:

"On and after this date the discount or Parker's Patent Blind Hinges, for full cases will be 50 and 10 per cent." The list for these goods was published in

our issue of 2d inst. We have received the following circulars

CIRCULAR. At a meeting of the Auger and Bit Manufacturers, held at the Astor House, New York, October 7, 1879, the following list of Auger Bits was unanimously adopted, to

Per doz \$5.50 3.00 3.00 3.25 3.25 3.50

9 10 11 12 13 14-11

Per doz \$4.00 4.50 5.00 5.50 6.00 6.50

15 16 17 18 20 22 24

Per doz \$7.25 8.00 9.00 10.00 11.00 12.00 14.00

It was agreed also that the discount on Augers and Bits shall be 40 and 10 per cent. Douglass Mfg. Co., Russell & Erwin Mfg.
Co., sole agents; W. A. Ives & Co., Elmira Noble Mfg. Co., Connecticut Valley
Mfg. Co., C. L. Griswold, Snell Mfg. Co.,
C. E. Jennings & Co., French, Swift &
Co., Humphreysville Mfg. Co.

Office of Honace Durrie & Co., 97 Chambers Street, New York, Oct, 7, 1879. The list on Hollow Augers remains un-

changed, but the discount on same is at present 30 per cent. Yours truly,

HORACE DURRIE & Co., Agents for FRENCH, SWIFT & Co. Augers...

HARTFORD, October 1, 1870 Destroy all former discount sheets.

quote: We invite attention to the advertisement of Bissell & Welles, on the 16th page. They will sell at auction on Friday, Oct. 17, at 10 No. 2 Square and Bovels. WILLIS THRALL & SON.

Office and Factory of the American Machine Co., PHILADELPHIA, Oct. 8, 1870. To the Trade: We herewith present you Parties desirous of introducing their goods our revised price list and discount sheet No.

	3, superseding all previous que	otation	is, viz.:
t.		Dis.	percent.
1	Crown Fluting Machines		20
ı	Star Fluting Machines	.00	0.50
	Inch	.00	5,00
	Original Knox Fluting Machines		\$4.00
1	American Fluting Machines		IO
	Inch	6	7
1	Eagle Fluting Machines		TO
3	Inch\$2.	15	2.85
- 1	Crown Hand Fluters		10
	Nos 1 2 Per dozen\$15.00 12.	50	3
	Bickford Portable Pump		
.	New Crown Christmas Tree Holder		25
	Per dozen\$9.0		3
	Crown Plaiting Machine 6		10
1	Each	o ·	8.00
1	Crown Can Opener	81	0.00
-	Mrs. Potts' Crown Irons, old list Enterprise Star		25

Office of LOWERNE & TUCKER, NEWARK, N. J., October 7, 1879.

Owing to the recent rapid advance in the price of material we are compelled to advance the price of our goods as follows, to take effect from this date: Knox Fluters, No. 99, 4 in., \$3.25; 6 in., \$4; 8 in.,

\$6.50. Crown Jewel, 6 in., \$3.40. Eureka, 5 in., \$4; 7 in., \$6. Discount from above list 10 per cent.

Our New York office is at No. 79 Chambers street, with Mr. W. H. Quinn as manager, who will look after the interests of jobbing and export trade. Yours very truly, LOWERRE & TUCKER

NEW YORK, Oct. 6, 1870. The large advance in Iron, Steel and Copper, as well as in other materials entering into the manufacture of our Scales, makes it shall be 5 per cent, less than formerly. So liciting a continuance of your favors, we re liciting a continuance main, yours very truly,
FAIRBANKS & Co.

Boston, October 6, 1870 In consequence of the rapid advance i the best grades of Norway Iron, on and after this date the prices of the Putnan Hot-Forged and Hammer-Pointed Horse Shoe Nails will be as follows, viz.: No... 10 9 8 7 6 5 4

\$0.19 0.20 0.21 0.22 0.34 0.27 0.50 Cash in 30 days in Boston or New York funds. Interest after 30 days.

From these prices we make a discount of the percent to the trade. These quotations are subject to change without notice. Parties offering or selling our Nails at less that our current rates will forfeit all claims for discounts. Yours respectfully,
PUTNAM NAIL Co.

Office of Wallace & Sons, Brass and Copper Rolling Mills, New York, October 6, 1879.

Referring to our circular of September 26, we beg to advise you of still further advance in price of Ingot Copper, 21 cent being present quotation. Please note advances as follows: Bolt and Braziers' Copper, ordinary sizes.... \$0.

Sheathing Copper Bottoms.... Corresponding advances have also been made in other goods manufactured from Brass or Copper. WALLACE & SONS.

Russell & Erwin Manufacturing Compan have issued, under date of 7th instant, th following revised discount sheet, to apply t the list of the Douglass Manufacturing Com pany, for whom they are sole agents:

OCTOBER 7, 1879

	age.					Dis.	per co	er
I,	Carper	iters' Sli	eks	*****			65	&
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2,	6.0	5.4	+6	No.			6s. x	0
-	5.0	4.6	Milly	vrights	' Chis	sels	65	R
	6.6	2.6	Corn		6.6		65	St.
	5.8	Firmer	Chisel	s. Extr	a		65	R
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	6.6	Framin	c Chise	de Fa	marg			R-
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	**	Firmer	Chanaha	in the same	40 "			13
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	44	Turnin,	g Chise	MS				
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	3.5	66	Exti				656	8
	4.6	4.6	No.	K			65 10	3
	1.1	4.5	Farr	mers'			65	3
	14	84	Was	on Ma	kers'.		656	2
10	4. 65	4.6	Carr	iage M	akers		654	8
-	Screw	Drivers-	-Sewii	ur Mac	hine.			8
	4.6	0.6	Rose	wood I	Iandle	98	11.35	8
	8.6	8.4	Extr	a			354	6
	8.8	44	No. 1				330	8
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	14	Dowell	BIES					
		Auger	BILS					, 1
4	Dougla	ass Mfg.	Co. 8 1	ulliwri	chts. 7	Auger	8. 400	
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	85.	4	.]	Post At	igers.		30	Ø:
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	44.		5.6	Machin	ne Au	gers	400	ge.
	8.6		0.0	Long	Eve	Brig	ht Li	D
	Augers			11				

	16, Douglass Mfg. Co.'s Long Eye Rafting
ρ	Augers 4084
C	Augers 40&2 Cook's Ring Augers 40&2 Douglass Mfg. Co.'s Long Eye Black Lip Augers 40&2 17, Douglass Mfg. Co.'s Short Eye Black Lip
	Douglass Mig. Co.'s Long Eye Black Lip
0	17. Denglass Mfg. Co 's Short Eve Black Lin
0	Augers
o	Augers 400 to Douglass Mfg. Co.'s Long Bright Augers 400 to
2	Short " togra
	Prevised list 40&10 Douglass Mfg. Co. 8 Cast Steel Bits, No. 1 40,10 &5 18, Douglass Mfg. Co. 8 Cast Steel Machine
	No. 1 40,10 &5
	18, Deuglass Mfg. Co.'s Cast Steel Machine
١	Bits
1	19, Jennings' Pattern Bits40
1	as Universal Helion Augus
ı	Ames' Patent "30
I	Ames' Patent " 30 21, New Patern " 30 Blake's Patent Bits. 40
I	Carriage Makers' Plug Cutters
1	22 Douglass Mfc Co 's Patent Auger Handles 10
l	1. It 11 11 11 11 11 11 11
ı	largeNet
ı	Swan's Patent Auger Handles 20&10
١	" Improved Auger
1	Cook's Boring Machine Augers50
	Douglas Mfg. Co.'s Boring Machine Augers
ı	24, Double Cut Gimlet Bits40
I	" Gimlets40
1	25, Metal Head Gimlets
I	Cast Steel Gimlet Bits40
ı	26. " Spoke Trimmers
1	Tap Borers 20&10
ı	with Ring20&10
1	Chalk Line Reels
١	" Socket
ı	Handled Brad Awls30
ł	Brad Awl Handles30
Ì	Pegging and Sewing Awl Handles30
l	" Firmer " "50&5
l	Socket Framing Chisel "30, 10&5 "Firmer "50&5 Firmer "40
l	28, Wooden Boxes50
ı	20, Tool Chests—200000 to 0
I	32, 33 & 34 " —7 to 1320
ĺ	They have also issued the following under
ĺ	date of 3d instant.

We have this day advanced the list prices of all real bronzed goods 20 per cent. Discount remains unchanged. We will issue revised list prices, together with full discount sheet, covering all our recent changes, as soon as possible. Note the fol-

All prices subject to change without notice. All orders subject to our ruling rates at date of shipment. No prices guaranteed. RUSSELL & ERWIN MFG. Co.,

Sargent & Co. have this day advanced the necessary that the discount from our list price of Bronze Metal Butts No. 875 to dis-shall be 5 per cent. less than formerly. So-

0-	vised prices for Sleigh Bells :
	vised prices for Sleigh Bells :
	A
	251,B1(+11 B)ELL25.
	Page in 1877 Discoun
1	Catalogue. Per Cent
	870, Round Sleigh Bells-Rough
n	Polished70&1
d	Tinned
m	Ex. Polished and Burnished
e	Silver Plated
	Nickel Plated
	870, Open Sleigh Bells-Fine Polished
te	Tinned
00	Silver Plated
	871, Neck Straps, Rough Beils
	Polished Bells6
of	Tinned "
15	873, Neck Straps—Polished Bells
P-	Tinned Bells
	Polished Rells
n	Tinned "
)l	Extra Tinned Bells
	874 Martingale Straps-Polished Bells
	Tinned Bells
	See Rody Strang—Polished Rells
	Tinned Bells
	Extra Tinned Bells
	875, Body Straps, Harness or Russet Leather-
or	Polished Bells5
d-	Barton Bells
	White Metal "Silver Plated "
ts	875. Black or Russet Leather Fancy Straps-
d-	Silver Plated Bells
	White Metal Bells, Extra Polished
28	Sw6 Fancy Strans, Nos. 276 to 287—Polished Rells
26	Tinned Bells
30	876, Fancy Straps, Nos. 388 to 408-White Metal,
n	Ex. Polished
m	Nickel Plated
	8-6 Broadway Strang—Silver Plated Bells
177	Nickel Plated Bells
у	Gold " "
he	876, Scolloped Edge Body Straps, with Riveted
to	Bells-White Metal Bells
n-	Silver Plated 4
	Nickel " "
	Gold " "
	877, Straps, Nos. 440 to 444—Polished Bells5
ıt.	White Metal
10	Gold or Silver Plated
10	Nickel Plated
10	Straps, Nos. 450 to 454-Polished Bells
KO	Ex-Polished5
10	Gold or Silver Plated
25	Nickel Plated
25 25	877, Straps, Nos. 5400 to 5630-Extra White Metal.
25	877, Straps, Nos. 525 to 529-White Metal Bells4
10	Nighal Plated
14	878. Body Straps, Pol'd and W. Metal (Change
40	list of No. 570 to \$2)
14	Back Straps, Nos. 580 to 584-Polished and White
	Metal
13	Extra Polished Bells White Metal Silver Plated 87s, Black or Russet Leather Fancy Straps— Silver Plated Bells White Metal Bells White Metal Bells, Extra Polished Nockel Plated Bells 175, Fancy Straps, Nos. 376 to 387—Polished Bells 175, Fancy Straps, Nos. 388 to 403—White Metal, Ex. Polished Silver Plated Bells Nickel Plated 176, Broadway Straps—Silver Plated Bells Nickel Plated Bells Gold 176, Scolloped Edge Body Straps, with Riveted 1776, Scolloped Edge Body Straps, with Riveted 1777, Straps, Nos. 440 to 444—Polished Bells 1777, Straps, Nos. 440 to 444—Polished Bells 1777, Straps, Nos. 450 to 454—Polished Bells 1777, Straps, Nos. 450 to 454—Polished Bells 1777, Straps, Nos. 450 to 5630—Extra White Metal 1778, Straps, Nos. 540 to 5630—Extra White Metal 1779, Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polished and White 1779, Body Straps, Nos. 580 to 584—Polish
10	Nos. 852, 864
10	No. 805
3	With Scolloped Edge, No, 810

-8A. Back Straps, No. 820 No. 835.
878A. Sieigh Shaft Straps, Nos. 463, 464—Extra
Polished Bells.
White Metal Bells
Silver or Gold Plated.
879A. Sleigh Shaft Straps, Nos. 473, 474—Extra
Polishes Bells
White Metal Bells
White Metal Bells 10 per cent. extra discount for prompt cash SARGENT & Co. The Humason & Beckley Mfg. Co. have

Back Straps, Nos. 590 to 604—Pol'd Bells

78, Boys' Driving Reins-No. 1...

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With No. 6 Fancy Iron Thumb Knob and Plate.

Per doz.

1404... 1405... 1410... 1415... 1416... 1416... 1417... 1417... 1418... 1418...

1593. 1600. 1605. 1630. 1635. 1640. 1645. 1650.

6 With No. 7 With Brass Thm'b Pl'ted Knob and Plate.

515 535 Tinned Key

issued a catalogue of 112 pages, in which they illustrate in a very comprehensive manner the lines of specialties manufactured by them. Among the goods shown are a fine assortment of Cork Screws, Nut Cracks. Cleavers, Mincing Knives, Saw Sets, Belt Punches, Screw Drivers, Marking Awls, Cotton Hooks, &c. They also show Patent Ox Yoke Bow Pins, Bull Rings and Punches, Cattle Leaders and kindred goods, a good line of Wrought Iron Hardware, including Hooks and Staples, Rings and Staples, Awning and Meat Hooks. A good assortment of Cast Steel Hammers is also pre sented, and a line of Wrought Iron Spring Bolts, Brass Spring Bolts, Hand or Stair Rail Screws and Bright Wire Goods is also shown. The catalogue closes with 35 pages devoted to illustrations and price lists of the assortment of Pocket Knives manufactured by the company. The following are their discounts:

DISCOUNT SHEET

Of the Humason & Beckley Mfg. Co., New Britain, Conn., and 100 Chumbers street, New York, re-vised October 1, 1379, for Wholesale Dealers. Dis. per cent. Page, Dis. 1
3-2a, Cork Screws
22, Champagne Opener or Wire Cutter
23, Nut Crackers, for Table
23, Nut Picks Nut Picks. Kitchen Knives. Can Openers, McGill's Patent. Knife Sharpeners, Nash's Patent. Ice Picks..... Carpet Claws Butter and Cheese Tryers . Curling frons
Mincing Kuives
28, Saw Sets, Nash's Patent
Belt Punches
Saddlers' Claw Tools
Serew Drivers
Marking Awls
Belt Awls
Box Serganors Belt Awls
Box Scrapers, Two Handles.
Box Hooks.
Cotton Hooks.
Pruning Hooks.
Malleable Hooks and Eyes.
Pocket or Skater's Gimlets. Wro't Staples, Plain and Japanned, Hand Forged. 60x10 Wro't Rings and Staples, Plain and Japan-led, Hand Forged. 60x10 Wro't Rings, Plain and Japanned. 60x10 Wro't Awning Hooks, Hand Forged. 55x10 42, Wro't Tinned Meat Hooks, including No.

-56, Hammers.
Nail Sets.
Nail orawers or Box Openers.
58, Bolts. Triangles.

108, Pen and Pocket Cutlery, "H. & B.",
Erasers.

85, 1-105, Pen and Pocket Cutter;
28, Erasers.
28, Erasers.
33/3
3118, Bosson
Tips, 608
119, Boston Finish Parliament Butts, Acorns, No.
610.
120, Boston Finish Parliament Butts, No. 612.
121, "Narrow Butts, No. 612.
124, "Narrow Butts, No. 614.
125, "Back Flaps, Nos. 616, 620.
126, Boston Finish Parliament Butts, No. 612.
127, "Light" 615.
128, "Square Back Flaps, Nos. 626, 20.
129, "Square Back Flaps, Nos. 626, 20.
129, "Square Back Flaps, Nos. 626, 20.

Bang-up" Revolvers, under date of 1st instant. They quote these goods at discount 20 per cent, to the trade, and in lots of 50 at discount 30 per cent. from the following

No. 1, 22 Caliber, 7 Shot, Full Nickel-plated,
Long Fluted Cylinder, 2½-inch Barrel. \$1.25
No. 2, 32 Caliber, 5 Shot, Full Nickel-plated,
Long Fluted Cylinder, 2½-inch Barrel,
Weight, 9 ounces 2.25
No. 3, 36 Caliber, 5 Shot, Full Nickel-plated,
Long Fluted Cylinder, 2½ and 3-inch Barrels, Weight, 12 ounces 3.75
No. 4, 47 Caliber, 5 Shot, same style as No. 3. 4-00
A liberal discount from these prices will be allowed in quantities of 5 and upward, assorted.

In the advertisement of Fernald & Sise, which appeared in our issues of September 4 and October 2, in which their "Horse Shoe Padlocks" are shown, the words "Bellamy's Patent, June 24, 1879," were inadvertently omitted.

The Stanley Works discount sheet, to apply to their catalogue and price list of 1879, was issued under date of 1st inst., and will be found below. It contains all the changes in prices of their goods to date. Introducing this discount sheet, they say:

All circulars and discounts given by us previous to this date are hereby withdrawn. We desire to call especial attention also to the fact that all our prices and terms, quoted by circular, are "subject to changes of the market without notice," and that we remarket without notice," and that we reserve the right to reject the whole or any part of orders sent us in which the price, quantity or assortment of sizes are not satisfactory to us.

New Britain, Conn., Oct. 1, 1879.

Narrow Butts, Nos. 275, 278, 280. Light "2 2, 384. Narrow, Loose Pin, No. 285. Loose Pin, No. 285. Extra Light Butts, No. 292. Light Loose Joints, No. 292. Back Flaps, Nos. 294, 298. Beveled Edge, Nos. 30c Bronzed Square Back Flaps, Nos. 306, 308, 310. Beveled Edge, Nos. 312, 314, 316 Bronzed Inside Blind Butts, Nos. 318, 320, 122. Beveled Edge Nos. 324, 326, 328.... Bronzed Light Inside Blind Butts, Nos. 330, 32, 334 Bronzed Light Inside Blind Butts, Edge Holes, 8, 400.... 67, Bronzed Barrel Bott?, Nos. 402, 404, 406, Nickel-plated Capped Butts, with Tips, Nickel-plated Capped Butts, with Tips, Nickel-plated Loose Joint Butts, Steeple 76, 77, Nickel-plated Loose Joint Butts, No. 508
Tips, No. 506
\$\frac{1}{2}\\$, Nickel-plated Loose Joint Butts, No. 508
Car Butts, Steeple Tips, No. 510.
Car Butts, Steeple Tips, No. 510.
Butts, Steeple Tips, No. 510. No. 514 33, Nickel-plated Parliament Butts, Steeple Tips, No. 516 No. 516. 84, Nickel-plated Light Parliament Butts, Nos. 518, 520. 85, Nickel-plated Light Narrow Butts, Nos. 522, 86, Nickel-plated Light Loose Pin Butts, Nos. Nos. 530, 532......30 88, Nickel-plated Light Loose Joint Butts, Nos.

114, 115, Boston Finish Loose Fin Butts, occopa-Tips, No. 602. 116, Bostou Finish Loose Joint Butts, No. 604. 40 117. Car Butts, Steeple Tips, No.

124, Boston Finish Inside Blind Butts, Nos. 626, 125, Olive Bronzed Light Loose Joint Butts, No. Olive Bronzed Light Reversible Butts, No. Olive Bronzed Light Narrow Loose Pin, No. 634 ... 40 26, Olive Bronzed Light Narrow Butts, No. 636..40 Inside Blind Butts, 638,

128, Boston Finish Extra Heavy Flush Bolts, K. 20, 20, Boston Finish Extra Heavy Flush Bolts, K. 20, 130, 131, Boston Finish Extra Heavy Flush Bolts, K and S., 646, 648 212, 131, Boston Finish Extra Heavy Flush Bolts, K and S., 646, 648 213, 131, 132, Boston Finish Extra Heavy Flush Bolts, Many 134, 135, Boston Finish Sunk Flush Bolts, 854, 656 21, 654, 656 Plain Knobs, Nos. 650, 052.

Plain Knobs, Nos. 650, 052.

134. 135. Boston Finish Sunk Flush Bolts Nos. 658, 666. 20

135. 136. Olive Bronzed Barrel Bolts, Nos. 658, 666. 20

135. 130. Japanned Loose Joint Butts, Steeple Tips, Nos. 704, 706

140. 144. Japanned Loose Joint Butts, Steeple Tips, Nos. 708, 710.

144. 145, Japanned Loose Joint Butts, Steeple Tips, Nos. 708, 710.

144. 145, Japanned Loose Joint Butts, Steeple Tips, Nos. 712, 714, 716

145. 147, Japanned Loose Joint Butts, Acorns, Nos. 718, 720.

146. 147, Japanned Loose Joint Butts, Acorns, Nos. 718, 720.

148. 149, Japanned Loose Joint Butts, Steeple Tips, No. 724.

149. 149, Japanned Loose Pin Butts, Steeple Tips, No. 726.

152. 153, Japanned Loose Pin Butts, Steeple Tips, No. 726. Tips, No. 726.
123. 133. Japanned Loose Pin Butts, Steeple 105A
Tips, No. 728.
124. 125. Japanned Loose Pin Butts, Steeple 105B
1254. 125. Japanned Loose Pin Butts, Steeple 105B
1256. 1257. Japanned Loose Pin Butts, Acorus, No. 108A 732 133, 159, Japanned Parliament Butts, Steeple 168B 17ps, Nos. 734, 735 160, Japanned Parliament Butts, Steeple Tips, No. 738. 161, 162, Japanned Parliament Butts, Acorns, Nos. 740, 742. Japanned Parliament Butts, Acorns, No.

*189, Croquet Hinges, Nos. 936, 938..... *100, Rolled Plate and Rolled Raised Hinges. Nos. 940, 942... 91, Rolled Piate and Raised Blind Hinges, Nos. 944, 946... 91, Norwich Blind Hinges, Nos. 948, 950.... 102, Japanned Strap and T Hinges, Nos. 108. Carpet Hammers, No. 968.

*200, 201, Flush Bolts, with Knobs and Slides,
Nos. 1000, 1002, 0034, 1006.

*202, 203, Flush Bolts, with Knobs and Slides,
Nos. 1008, 1008, 1012, 1014.

*204, 205, Extra Heavy Flush Bolts, Brass Knobs.
Nos. 1016, 1018.

*206, Flush Bolts, Brass Knobs, Nos. 1020, 1022.

*207, New York City Sunk Flush Bolts, No. 1024.

*208, 209, Sunk Flush Bolts, Nos. 1030, 1032.

*208, 209, Sunk Flush Bolts, Nos. 1030, 1032.

*208, 209, Sunk Flush Bolts, Nos. 1030, 1032.

*208, 201, Sunk Flush Bolts, Nos. 1030, 1032.

*208, 201, Sunk Flush Bolts, Nos. 1030, 1032.

*208, 202, Sunk Flush Bolts, Nos. 1030, 1032.

*208, 203, Sunk Flush Bolts, Nos. 1030, 1032.

*208, 203, Sunk Flush Bolts, Nos. 1030, 1032.

*208, 203, Sunk Flush Bolts, Nos. 1030, 1032.

*208, 201, Sunk Flush Bolts, Nos. 1030, 1032.

*209, 201, Sunk Flush Bolts, Nos. 1044, 1046.

*200, 202, Barrel Bolts, Nos. 1050, 1050, 1054, 1054.

*200, 202, Barrel Bolts, Nos. 1058, 1056.

*202, 2024, Square Bolts, 1088, 1088.

*208, 1004.

*208, 1004.

*209, 201, Sunk Flush Bolts, Nos. 1058, 1056.

*200, 202, Barrel Bolts, Nos. 1058, 1058.

*200, 202, Barrel Bolts, 1088, 1088.

*201, Tower Bolts, Nos. 1104, 1106.

*202, 203, Flush Bolts, Nos. 1100, 1102.

*202, 203, Flush Bolts, Nos. 1104, 1106.

*203, 204, Sunk Flush Bolts, Nos. 1100, 1102.

*204, Sunk Flush Bolts, Nos. 1104, 1106. Japanned Shutter Bolts, Gaivanized Bolt.

Gaiv'd Chest Handles, Heavy, No. 1316, 1318, 131

We print below the Norwalk Lock Co.'s revised price list of Locks and Knobs, which has just been issued under date of September 18, 1879. Their discounts are as follows: On all goods on their list except Babcock's Window Springs and Genuine Bronze Goods, 60 per cent., net cash; Babcock's Window Springs, discount 20 per cent.; all Genuine Bronze Goods, discount 45 per cent.; 2 per cent. may be deducted from all bills if paid within 30 days of their date.

NORWALK LOCK COMPANY'S REVISED PRICES. SEPTEMBER 18, 1879.

6, 10 310.

11,70 315.

11,70 315.

12,70 320.

30,00 321.

4,60 325.

6,70 320.

5,45 335.

7,85 340.

11,40 344.

12,50 346.

15,75 347.

14,50 346.

17,00 350.

17,00 350.

20,25 355.

174.00 690.00 690.00 690.00 600.00 66

\$14.20 15.50 10.80 12.20 15.70 17.70 19.00 Locks and Latches. With No. 6 Fancy Iron Thumb Knob With No. 7 Brass Thum Knob and Plate. | Locks and Latches | Per doz. | 225, H. P. 66.00 | 260, | 245, | P. 96.00 | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2470, | 2 No and Plate 12.35 6,20 8.25 \$21.65 24.55 26.35 30.15 24.75 26.25 29.40 29.85 \$19.00 3.10 4.50 6.50 9.40 7.80 10.80 3.10 6.10 4.50 7.50 21,90 23,70 27,50 22,10 23,60 26,75 27,20 495,2 k. 495,2 k. 495,2 k. 495,2 k. Locks with New Steel Keys. Same as No. Tinned Key. 63.45 59.00 70.00 68.50 63.45

With No. 8 I't'd Thumb

347 348 403 Tinned Key 405 450 Tinned Key

578 Two Keys. with Slide Bolts 14.15 16.40 17.95 20.20 32 1309/2 1311/2 1311/2 1311/2 1311/2 1311/2 1311/2 1312/2 1312/2 1312/2 1312/2 1312/2 1312/2 1312/2 1312/2 1312/2 1312/2 1312/2 1312/2 1313/2 1314/2 1314/2 1314/2 1314/2 1314/2 1316/2 13 22,25 12.70 3418 %
7.00 3419 %
10.00 3419 %
11.35 3430 %
8.75 3421 %
13.20 3502, Tinned Key. 1
1.5,20 3503 %
8.95 3503 %
11.15 3504 %
17.00 3508 %
11.25 3508 %
11.25 3508 %
11.25 3508 %
11.25 3508 %
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11.25 3508 %
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11.25 3508 %
11.25 3508 %
11.25 3508 %
11.25 3508 %
11.25 3509 %
11.25 3509 % 1421 1421½ 1502 Ornamental Case 1503 3503 Fancy Bronzed Case... o4 Ornamental Case.... o4 Fancy Bronzed Case... o7 Ornamental Case.... Plate. or Tinned Key. .904... .904... .906... .906... .908... .908... Door Knobs. Per doz. | No

Per doz. 3.08 4.25 9.35 9.35 10.45 10.45 37.70 80.00 80.00 5.35 6.70 \$6,00 6,00 12,40 30,00 4,00 5,70 13,35 3,08 3,08 3,08 5,00 5,00 4,25 4,25 4,25 4,25 10,70 9,35 12,35 12,35 12,35 16,70 354... 355... 357... 358... 360... 361... 362... 363... 365... 370... 371... 371... 373... 373... 373... 373... 373... 373... 375... 134.00 126.00 134.00 66.70 66.70 73.35 81.35 73.35 81.35 36.70 36.70 36.70 39.50 39.50 26.70 26.90 30.70 34.70 34.70 39.70 39.70 45.50 56.00 37.70 45.70 66.70 73.35 3.08 Silica Door Knobs. No. Per doz. No. Ar. \$21.50 A 2. 21.50 Per doz Size. Per doz. | Size. Per 1½ in., Elec. Pl't'd...\$7,88 | 1½ in., Silv'd Glass. 1½ in., Hand Pl't'd. 15.70 | 1½ in., Silica.....

Escutcheons. Techeons.

Per dos. No. 180.00 425.

16.00 430.

16.00 430.

16.00 430.

16.00 430.

11.0 460.

11.0 460.

11.0 460.

2.20 500.

6.00 505.

2.20 515.

2.20 515.

2.20 520.

2.70 525.

11.0 541.

11.0 541.

11.0 545.

11.0 545.

11.0 545.

11.35 636.

11.35 636.

11.35 636.

11.35 636.

11.35 636.

11.35 636.

11.35 636.

11.35 641.

11.35 641.

11.35 641.

11.35 641.

11.35 641. Per doz.
...\$6.70
...6.70
...8.00
...6.70
...10.00
...13.35
...18.00 4.00 4.35 6.70 3.00 10.00 10.00 00. 12.30 62. 9.25 75. 14.20 90. 11.30 105. 18.00 155.

S	ilica Escutcheon	3.	
av. Dan dan	No Per doz	I No. Per	doz.
A	No. Per doz. D \$2.50 E 2.50 F 3.50	G	\$3.50
B 2,50	E 2.50	J	5,00
C 2.50	F 3.50	1	-
Fancy Ornam	ental Iron Bronze	ed Door Loc	ks.
	No. Per set.		r doz.
₹o. Per doz.	00227 0.00	00374	14.00
V120 5,00	00227 0.00 Per doz.	00375	
	00235	00370	21.25
003711.60	00255 72.00	QU410	13.60
007515.50	00289	00422	15.73
007515.50 007616.25 007719.00	0029078.10	00485	16.00
00177	00201	00545	18,00
DOY 78 12.25	00302 00.05	00505	20,00
0017914.25	0030354.50	00605	24.00
0021530.00	0034476.50	00667	19.80
Per set.	0034579.50	00008	21.00
00220 0.00	0034476.50 0034579.50 0034755.00 00348\$58.00	00673	25.00
117	ith New Steel Ke	avs.	
No. Same as No.	Perdz. No. Sa	me as No. P	er dz.
517700177 517800178 517900179	12.25 5344	00304	76.50
517960179	14.25 5345	.00344	79.50
521000210	37.50 5347	.00345	55,00
5179	39.50 5418	-00418 ··	13.00
528800288	72.00 5422	.00422	15.75
528900289 529000290	78.10 5485	.00485	16.90
529500295 530100301 530200302	72.00 5545	.00545	10.00
530100301	60 65 5505	00565	30.00
530200302	54.50	1003007777	9
Fanor Ornam	ental Iron Bronze	d Door Kno	bs.
Fancy Ornam	The state of the s	. W. Da	n don
No. Perdoz.	No. Per doz.	No. re	10.00
316	0651 12,00	0655	.13.00
317 5.00	0650\$12.00 0651 12.00 055210.00	o656	13,00
317/2 6.50			
Mortise	Thumb Knobs an	d Plates.	
No.	Per doz. No. \$2.00 16	Per	doz.
6	\$2.00 10		. p2.00
	nental Iron Bron		
No.	Per doz. No.	Per	doz.
450	\$5.00 0500	1 Th	
Fancy Orname	ntal Iron Bronze	1 Escurency	
No. Perdoz.	No. Per doz. 00875\$1.25 00880 1.00 00890 1.50	No. Pe	St. sc
00855\$1,00	00880 1.00	00300	. 2.25
00865 1.00	00890 1.50	00910	. 2.25
00070		-	CALL STREET, ST.
Ornamental	Genuine Bronze	Door Locks.	
No. Each.	Each.	No.	Each
025 \$0.83	Each. 0230. 4.60 0245. 7.88 0270. 4.16 0275. 2.85 0.285. 10.50 0287. 6.13 0290. 7.00 0295. 6.75	0347	5.45
070 1.75	0270 4.16	c355	13.35
075 1.30	0275 2.85	0358	9.00
078 1.95	0287 6.13	0432	1.75
0179 1.50	0290 7.00	0496	1.95
0179 1.50	0295 6.75	nefie	2.85
0215 3.50 Per set. 0220 28.45 0225 31.50	0303 4.38	OFFIC	2,63
0220 28.45	0305 11.38	0500	3.07
0225 31.50	0315 6.43	0605	2.63
022616 \$10.25	0345 \$8.10	0675	2.85
0227 15.75		1	
Ornamental	Genuine Bronze	Front Locks	5.
W	ith New Steel Ke		
No. St	ame as No.		\$1.30
	0178		1.50
4210	0210		3 90
Table 1	0215	*** ******	3.50
4215		******	4.16
4215	0270	**********	2.85
4270	0275		
4275	0275		6.75
4275 4275 4290 4205	0275		7.00 6.75 4.60
4275 4275 4290 4205	0275		7.00 6.75 4.60 4.38
4270		n of front.	7.00 6.75 4.60 4.38 11.38
4270 4275 4290 4295 4302 4303 4305 4315	0275 .0275 .0290 .0302 .0303 .0305 New desig	n of front.	7.00 6.75 4.60 4.38 11.38
4275	.0275 .0275 .0295 .0302 .0303 .0305 New desig	n of front.	7.00 6.75 4.60 4.38 11.38 6.13 7.88 8.10
4275 4275 4290 4295 4302 4303 4305 4305 4345 4345 4345	.0275 .0275 .0295 .0305 .0303 .0305 New desig .0315 .0344 .0345	n of front.	7.00 6.75 4.60 4.38 11.38 6.13 7.88 8.10 5.68 5.45
4275 4275 4290 4295 4302 4303 4303 4305 4335 4344 4345 4347 4348	.0275	n of front.	7.00 6.75 4.60 4.38 11.38 6.13 7.88 8.10 5.68 5.45 1.75
4270	0275 0295 0290 0302 0303 0305 0305 0305 0315 0344 0345 0347 0348 0492 0494	m of front.	7.00 6.75 4.60 4.38 11.38 6.13 7.88 8.10 5.68 5.45 1.75 1.75 2.20
4905 4302 4303 4305 4315 4344 4345 4347 4348 4432 4406 4501	.0275	n of front.	7.00 6.75 4.60 4.38 11.38 6.13 7.88 8.10 5.68 5.45 1.75 2.20 2.85 2.63

Ornamenta	d Genuin	e Bronze	Door Knobs	
No. Per doz.	No.	Each.		Each
225 \$11.65			637	
286 11.65			638	4.0
230 16.95	608		639	3.5
231 16,95	6081/2	4.00	640	2.6
250 11.80		2.63	641	
251 14.80	6101/2	3.85	650	2.9
255 17.00		4.25	6501/2	4.1
256 17.00		4.38	660	3.0
Each.	616	4.75	6601/2	4.2
523 3.36	618	4.00	675	3.6
524 4.60	620	4.10	6751/2	4.8
525 3.36		4.50	680	7.1
535 4.60	622		681	6.6
Per doz.	623	5.88	685	6.2
550 14.85	624	6.30	686	5.8
Each.	625	3.27	700	6.
600 2.50	62516	4.45	701	7.8
6001/2: 3.68	626	5.43	702	5.1
604 2,63		4.38	703	6.
6041/2 3.85			704	
605 2.75	635	4.10	705	7.8
6051/2 4.00		4.25	706	8.5
Ornamenta	d Genuin	e Bronze	Escutcheon	s.
No. Each.	No.	Each.	No.	Eacl
480 \$0.44	0875	\$.34	0955	\$1.5
48157	c83o	31	0956	
48257			0957	I.
483 44		39	0900	3.
082077		40	0961	3.0
034024		92	0965	I.,
0345 ,21	0010	92	0980	2.0
0850 ,24	CQ15	92	0381	2.5
0855	0950	I.75	0990	3.
0856 ,24	0951		0995	
087034	0952	I.50		

BRITISH IRON MARKET.

[Special Report by Cable to The Iron Age.]

I ondon, Wednesday, Oct. 8, 1879. Scotch Pig.—Under the heavy demand a steady advance has taken place in the price of Pig, the quotations for Garthsherrie showing an advance of 8/6 over the price cabled last week. For Glengarnock the ad-vance is 8/6, Coltness 8/6, and Eglinton

£4. 15/@£5.

Foundry No. 1, \$30 @ \$31; Foundry No. 2, \$20 @ \$30; Gray Forge, \$27 @ \$28.

Scotch Pig.-We hear of great excitement in the Glasgow market, occasioned, it trade is reported exceedingly dull and their Continental business greatly restricted, Italy and Germany having in a great measure ceased buying, on account of advancing prices. It is reported that English capitalists have entered the market and purchased for investment 300,000 tons of Scotch Pig. The arrivals at this port during the week amount to 1200 tons, all sold to arrive. Sales nock, \$29; Garthsherrie, \$29, and Coltness, \$31. Reports are still current of large shipments of Middlesboro' or Cleveland Iron to this country, but upon investigation we think these rumors are exaggerated.

Rails.-We do not hear of any new business in Steel or Iron Rails since the large transactions noted last week. We quote, nominally, Iron, \$40 @ \$42, and Steel,

Old Rails,-Old Rails, to arrive October November and December shipments, are offered at \$31, here. No transactions are reported. We quote, \$30 @ \$31.

Scrap.-We quote No. 1 Wrought, \$35 @ \$38.

The following circular explains itself:

CONFERENCE OF EASTERN BAR IRON MANUFAC-

PHILADELPHIA, October 2, 1870. DEAR SIRS: At the request of the Bar Iron Conference, held in this city February 21, 1879, and subsequently, we have the pleasure of extending to all manufacturers of Bar, Band and Hoop Iron receiving this circular, a special invitation to attend the circular, a special invitation to attend the adjourned meeting of the Convention, to be held in the parlor of the American Iron and Steel Association, 265 South Fourth street, Philadelphia, on Thursday, October 16, 1879, at I p. m., sharp.

The chief object of the meeting will be the consideration of the schedule of extras on Bar Iron already submitted to the mills, and the final adortion and publication of

the final adoption and publication of a schedule which will be recognized as the minimum standard selling extra for the respective sizes by all manufacturers, East and West, when selling in each other's territory

After years of unprofitable business, the Bar Iron manufacturers of the country seem determined to adopt and maintain a schedule of extras which will pay them for the extra labor, waste and fuel expended in their pro-duction, and this is the time to do it.

The necessity for unity of action, which

will harmonize the varied interests involved. and secure to the producer a reasonable re-turn for his investment and energy, encourages us to hope that this vitally important subject will receive proper consideration from all of the Iron manufacturers to whom this circular is addressed. That the interests of all may be protected, we again urge them to be present or represented at the meeting Please let us hear from you promptly. Very respectfully, OLIVER WILLIAMS, Chair'n,

WM. E. S. BAKER, Sec., No. 122 Race street, Philadelphia.

METALS.

has been in an excited condition, and prices have advanced. The upward movement has 13½ @ 15¢; Yellow Metal Bolts, 20¢, and English Yellow Sheathing Metal, 12¢, in

IRON.

American Pig.—While the tone of the go to press. In October last year the price for Straits Tin in London was £54, or £30 lower than at present, and our market stood at 136 not last writing, there does not seem to be the same anxiety on the part of consumers to secure future supplies, and the condition is described by some operators as a "Izll." We hear of some sales for next year's delivery being consummated during the week on the basis of \$30 @ \$31 for No.

American Pig.—While the tone of the go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price as we go to press. In October last year the price is quite as the price as how an advance over last quotations.

OLD METALS, PAPER STOCK, &c.

We note a general advance in prices in the Old Metal market this week. Stock is scarce, and the market is firm at our quotations. The market for Paper Stock is steady, but we have no change of prices to report.

American Pig.—While the tone of the latter figures show an advance over last quotations. The latter figures show an advance over last quotations. The latter figures show an advance over last quotations. The latter figures show an advance over last quotations. The latter figures show an advance over last quotations.

OLD METALS, PAPER STOCK, &c.

We note a general advance in prices in the load of the market is firm at our quotations. T

I, but particulars are withheld. We quote: from the Straits to the United States, 850 tons, and an unknown quantity from Australia to this country. The increase of shiptralia to this country. The increase of ship ments from the Straits to the United States this year is 2000 tons, as compared with the shipments thence this way from January 1 is said, wholly by the heavy demands for the United States and Canada. Their home ment. At the same time, we do not deny that the consumption on both sides of the Atlantic has materially increased this year, especially during the past three months, and that, owing more particularly to returned prosperity in this country, this enlarged consumption may be looked upon as bona fide, and therefore possibly, or we shall even say probably, counterbalance these increased shipments from the East. Tin Plates.—The stocks here are light, while at the same time amount to 1200 tons, an sold to arrive the have been only in a small way at very full the demand has increased very much, esfigures. We quote: Eglinton, \$28; Glengar-pecially in the way of speculation among pecially in the way of speculation A multiplication of small orders dealers. dealers. A multiplication of small orders, large in the aggregate, comes from consumers, who are generally urgent. Cable advices are very buoyant; Coke Tin is now worth 20/, and Charcoal, 23/@24/. The market here closes strong. We quote: large lots, ordinary brands, per box: Charcoal Bright, \$7.25 @ \$7.50; ditto Ternes, \$6.75 @ \$6.87½; Coke Tin, \$6.50 @ \$6.62½, and ditto Ternes, \$5.75 @ \$6.

Lead.—The strong advance noted in our ast has continued. About 600 tons were sold at our closing quotation, $4 \frac{1}{2} \frac{4}{7}$, and the price then rose until it reached $5 \frac{4}{7}$, at which figure a few hundred tons were taken. The entire business of the week aggregates from 1000 to 1200 tons, which, it is claimed, have 1000 to 1200 tons, which, it is claimed, have gone exclusively to consumers. The market is now firm at 5¢ for Common, while 5.20¢ (© 5.25¢ is asked for Refined Lead, with rumors of sales at considerably lower figures. "London, September 27.—Inquiries for the most part have proved of a limited character, but sellers have upheld their prices with steadiness, only slight concessions occasionally having been submitted to." Manufacturers have advanced their prices ½¢ on Sheet and Pipe, and ¾¢ on Bar, to take effect from yesterday. We quote: Bar, 5¾¢; Pipe, 6¢; Sheet, 6½¢; Tin-lined Pipe, 12¢; No. 1 Solder, 10¢, all less 10 per cent. to the trade.

trade.

Spelter and Zinc.—Common Domestic Spelter is still scarce, but so far as the moderate supply permitted there has been a fair business doing at 61% @ 61% . We quote: Refined, 8\$\phi\$ @ 83\phi\$; Silesian, 65% @ 65\phi\$ @ 65\phi\$ do eagernest from Lehigh Ore, 9\$\phi\$. "London, September 27.—A fair business continues to be doing, but prices show little alteration; nevertheless sellers display no eagerness to press sales at current rates, and it would, therefore, almost seem that they believe prices will still further advance." American Sheet Zine is worth 75\phi\$ American Sheet Zinc is worth 758¢ vance.

Nickel-Has followed in the wake of other n.etals, and advanced to \$1.40 ? lb. Antimony .- Advices by mail from London inform us that Antimony has advanced to $\pounds_5 8$, against $\pounds_4 9$ at this time last year. The business in available Antimony over there has been quite active, and it had become scarce in consequence. After some sales here at 18¢ @ 18¾¢, the unsold remainder is now firmly held at 19¢ @ 20¢.

During the past week the Coal market has been greatly excited, but very unneces-sarily so, over the rumor of a combination. During the latter portion of last week, the newspapers announced the completion of all the arrangements, and, on Saturday, the Copper.—The upward course of prices has made some further headway during the week under review, and, under the stimulus of an improved demand for consumption and some speculation, some 600,000 pounds of Lake Superior have changed hands at 19¢ @ 20½¢, closing at the latter figure. Baltimore is worth as much. The second lot of Copper reshipped this way from Europe has been delivered. Chili Bars are cabled from London £63. 10/, and Best Selected, £69. "London, Sept. 27.—During the greater parter of the week this market has been in an excited condition, and prices" "all work or all play" advocated by the standard it arrangements, and, on Saturday, the text of the agreement was published, and it was stated that all the companies had signed, with the exception of two, and the exception of two, and the exception of two, and the signed, with the exception of two, and the exception of two, and the companies had signed, with the exception of two, and the exception of two, and the exception of two, and the companies had signed, with the exception of two, and the exception of two, and the companies had signed, with the exception of two, and the signed, with the exception of two, and the exception of two, an might have been. Find and simple as the provisions of the new combination seemed, and much as they resembled the plan of "all work or all play" advocated by the Lehigh Valley, they are actually a quota distribution under a new name. To this it has been in an excited condition, and that have advanced. The upward movement has been effected solely by speculators, legitimate business at present not admitting of any rise whatever; consequently, there seems little probability that the enhanced quotations will be permanently maintained, for all the speculation in the world cannot reduce the speculation in the world cannot reduce the actual stock, and until such a time as a senatural stock. actual stock, and until such a time as a sensible reduction be made in the enormous at an advance of 10¢ or 20¢ per ton. It total stock, and which can only be brought about by increased consumption and diminished supplies, there is not the remotest ished supplies, there is not the remotest chance of higher prices being generally established. Chili Bars, £58. 5/." Manufactured Copper is in good demand at the combination prices, which have again been advanced $2\phi \not \ni b$. the new list taking effect from the 4th inst. Yellow Metal Sheathing is in fair demand and steady. Sellers make an allowance of $8\phi \not \otimes 3\psi \not \otimes 3b$ for old Metal when new is supplied. New Sheathing Copper, $2\phi \not \in$ Braziers, $23\phi \not \in$ and Bolts, $28\phi \not \in$ Braziers, $23\phi \not \in$ American Yellow Sheathing Metal, $13\psi \not \in$ Metal Bolts, $20\phi \not \in$ and $12\phi \not \in$ in do not signed a varied rate busy for some time to come, hence they will have little advantage from the present rise. Dealers who have vanced rates, but it does not appear that trade has been remarkably brisk, or that the quantity has been large. The Lehigh Valley people only make prices from day to day. Yesterday they quoted \$2.75 for all sizes save Chestnut, which was \$2.50. Lehigh Lump is variously quoted at from the present rise. Dealers who have vanced rates, but it does not appear that trade has been remarkably brisk, or that the quantity has been large. The Lehigh Valley people only make prices from day to day. Yesterday they quoted \$2.75 for all sizes save Chestnut, which was \$2.50. Lehigh Lump is variously quoted at from the present rise. Dealers who have vanced rates, but it does not appear that trade has been remarkably brisk, or that the quantity has been large. The Lehigh Valley people only make prices from day to day. Yesterday they quoted \$2.75 for all sizes a common one. The Pennsylvania Coal Co. common one. The Pennsylvania Coal Co. do not issue a circular until to-day. It is said that they will advance 20¢ or 25¢, Handled last week. For Glengarnock the adrance is 8/6, Coltness 8/6, and Eglinton 1/6. The market is firm at the following quotations:

Tin.—The past week has been one of the most exciting ones which have occurred in most excitations are sh

The purchasing price			de	alers
for Old Metals are as fo	llows:			
Copper, heavy	per ib.	\$0.13	03	.1356
Copper Bottoms	4.5	,12	(a)	
Yellow Metal	48 IP	80,	0	.08%
Brass, heavy	6.4	.08	a	.081/
Brass, light	8.6	.07	0	
Composition, heavy	44	.11	0	.12
Lead, solid	6.6	.0356	60	
Tea Lead	4.4		60	.031/4
Zinc	4.6	.03		.031/4
Pewter, No. 1	4.4	.03	(0)	.0374
Pewter, No. 2.	**	.10	@	.08
Crought Iron		.07	60	
Wrought Ironp	r. cwt	1,00	0	
Light do	**	.50	@	
Stove Plate		-50	60	
Machinery do	5.4	,60	60	
The prices current fo	r Rag	s, &c.	, ar	e as

The prices current for Rags, &c., are as follows:	1
Canvas, Linen per lb. 3 c. @ 3½c White Cotton, New " 4½c. @ " 1½c. @ " No. 2 " 1½c. @ " 1½c. @ White, No. 1 " 3½c. @ 4 c. c. % 4 c. No. 2 " 2½c. @ 2½c c. % 2½c Seconds \$\beta\$ lb. 1½c. @ 2½c	4
Soft	
Grass Rope " 2½c. %	11

EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the Week ending October 7, 1879:

Porto Rico. Hamburg. Ptlm., gals...3,000

Antwerp.

Ptlm., gls. 1,071,767 74,327

Mf. iron, pkgs 8 140

Hdw., cs. . . . 3 58

Sew. mach., cs 23 1,600

Lub, oil, bbls. 177 1,630 Tacks, cs.... 5 Mach. oil, bxs 150 Bremen. iuns, bx... 1 Lub, oil, bbls.. 100 Hdw., pkgs... 13 Tacks, cs... 15 Ptlm., gals... 2,250 Mach'y, pkgs... 4 Nalls, bxs... 14 Sew. mach., cs. 48 Brass g'ds, cs... 1 Lub. oil, bbls... off, it on, pkgs

Venezuela.

Brazil.

Africa.

Japan.

lombia.

Central America.

Shot, kegs . . . 5 20 Mach'y, pkgs 20 1,674 Hdw., pkgs . 10 276 Ptlm., gals. . 1,000 103 Powder, lbs . 1,212 502

Bridges, pkgs 18 6,310

China.

Harre.

Les Sables D'Olonne.

Barcelona.

550 5,042 1,151 2,758 1,324 325 2,023 305 1,939 410

Copenhagen. Hdw., cs..... 491 8,518 Pumps, pkgs. 40 1,373 Ag, imp., pkgs 311 2,696 Lub, oil, gals. 300 93 Mf. iron, pkgs 9 Elsinore. Ptlm., gals.243,865 17,006 tevolvers, cs. Frederickshavn. Ptlm., gals.167,413 11,690 Amsterdam. Ptlm., gals.715,510 52,131 Rotterdam. Ptlm., gls.1,230,287 87,600 S'pltdware, cs 4 247 Mf. cop., pkgs 18 220 Ag. imp., pkgs 14 627 Lub. oil, bbls. 72 979 Glassware,pgs 3 62 Notions, cs... 8 Belting, bales. 10 Tinware, cs... 10

Glassware,pgs 3 62 Copper, csks. 27 5,400 Mach'y, pkgs. 6 500 Ptim., gals. . . 7,000 Glassw'e, es. . 8 Mf. iron, pkgs 9 Nails, kegs. . . 13 Hdw., es. . . 21 Sew. mach. es r Powder, lbs.20,000 Hull. Ptlm., gals. 521,010 41,644 United States of Co-| tombta. | Holw., pigs. 10 | Holw., pigs. 13 | Shot, pigs. 13 | Shot, pigs. 10 | Sew. mach., e8 | 54 | Glassw'e, pigs. 22 | Wire, rolls. 12 | Nails, kegs. 8 | Spikes, kegs. 12 | Stron, bars. 50 | Fistols, bxs. 2 | St.verw're, es. 2 | Tinware, es. 50 | Cutlery, pigs. 170 | Powder, libs. 1,537 | M. firon, pigs. 13 | Notions, es. 2 | Ptim., gals. 9,999 | Ag. imp., pigs.

Glasgow. Lub, oil, bbls. 60 284 Iron rolls, cs. 11 1,838 Sew. macn. cs. 1 70 Shot, kegs... 5 Belfast. Ptlm., gals. .79,082 5,537 Malta. Ptlm., gals, 88,940 8,000 Ptlm., gals. 370,e00 38,500 Coal, tons . . . 100 300 Cartridges, cs 1 2 Canada. Glassware, cs. 3

Coal. tons... 551 1,578 Mach'y, pkge. 1 175 Ptlm., gals...7,421 719 British West Indies. Ptlm., gals., 13,312 1,239
Spikes, kegs. 10 67
Fd.w., pkgs. 24 315
Nails, kegs. 59 215
Glasswe, pgs 31 421
Mach'y, cs. 2 225
Mf, iron, pkgs 42 150
Iron safe... 1 100 97 Ptlm., gals, 198,052 6,100 811bao. 811bao. Ptlm., gals. 30,420 6,200 100 Barcelona. British East Indies. Ptlm., gals. 97,215 7,004 Ag. imp., pkgs 15 270 Ptlm., gals,820,000 82,000 British Honduras.

Dedeagatch. Ptlm., gals. 164,010 12,882 Tacks, cs.
Mf. copper, cs.
Car mtls., pgs 2
Caps, case.
Iron, mf. of.
Lead pipe, csk
Iron safes.
Cartridges, cs.
Rifles, cs.
Revolvers, cs.
Naffs, kops. Trieste Ptlm., gals.456,565 33,805 Mexico.
 Mexico
 Iron, mf, of
 315
 1.467

 Locomotive
 1
 5,300
 Lead pipe, csk
 1
 73

 Powder, lbs. 12,263
 3,388
 Pilm., galls. 44,720
 Lead, pipe, csk
 1
 76

 Iron, pkgs.
 36
 66
 fides, cs.
 1
 116

 Mach y, pkgs.
 12
 48
 Revolvers, cs.
 1
 100

 Glassw'e, pgs.
 69
 2,215
 Fire-arms, cs.
 20
 1
 Instrum ts, cs.
 2
 290

 Fire-arms, cs.
 6,428
 Railroad cars.
 4
 280
 8
 Railroad cars.
 4
 280

 Sew. mach.cs.
 2
 209
 Wire cloth, cs.
 1
 125
 Car springs, cs.
 2,00
 2,60

IMPORTS

Of Hardware, Iron, Steel and Metals into the Port of New York, for the Week ending Oct. 7, 1879 : Hardware.

Mason, John W. & Co.
Wire rope, coffs, 10
McCoy & Co.
Bundles, 1350
Naylor & Co.
Iron rings, 70
Iron wire, bbls, 21
Scrap, tons, 500
Mdsc., pkgcs, 22
Perkins, Livingstone & Co.
Coses viv. Hardware,

Adams, Jos. H. & Son,
Hydraulie jack, r
Baker White Brass Co.,
Limited,
Machinery, cs., r
Boker Hermann & Co.
Hdw., cs., 9
Hdw., cs., 524
Fleitman & Co.,
Ironware, cs., 8
Folson H. & D.
Arms, cs., 5
Friedmann & Lauterjung.

Perkins, Livingstone
Co.
Cases, 1115
Pioneer Iron Works
Scrap, tons, 433
Machinery, pes, 2
Williamson Jas. & Co.
Pig, tons, 400
Order,
Bars. 69
Bundlest, 406
Cast iron, es., 520
Fish plates, 2150
Old rails, pes, 326
Old rails, tons, 203
Ore, tons, 220
Pig tons, 1635
Rail crops, tons, 166
R. R. iron, bars, 6509
Rails, tons, 200
Spiegeleisen, kilogs.,
233,670
Stegeleisen, tons Moss., pkgs., 4
Grac f Cutlery Co.
Mdse., pkgs., 2
Hermann H. & Co.
Mdse., pkgs., 60
Hurst, F. W. J.
Filet, csks, 7
Filet, csks, 7
Filet, cs., 12
Larabee, E. J. & Co.
Machinery, cs., 2
Lecount Bros.
Hdw., cs., 9
Lissauer & Sondheim,
Hdw. pkgs., 2 252,670 Siegeleisen, tons, Metals.

Lecount Bros.
Hdw., cs., 9
Lissauer & Sondheim,
Hdw., pkgs., 2
Livingstone, W. & F.
Grindstones, 1,059
Lewi, Edgar,
Hdw., cs., 2
Maine Beet Sugar Co.
Machinery, cs., 16
Machinery, pkgs., 6
McCoy & Co.
Hdw., cs., 2
Merchants' Dispatch Co.
Gun wads, cs., 12
Meriden Britannia Co.
Mdse., pkge., 1
Mitcheli, Vance & Co.
Mdse., pkgs., 5
Moore's J. P. Sons
Cartridge cases, cs. 6
Gun wads, cs., 12
Parmele, Alfred
Coal, tons, 164
Perkins & Co.
Coal, tons, 164
Perkins & Co.
Coal, tons, 164
Rogers Henry.
Mdse., pkgs., 5
Sawyer, John
Wire rope, pkg., 1
Saxton & Senbury
Steel wire, pkgs., 4
Schoverling, Daly &
Gales
Arms, cs., 2 Aleo, M.,
Tinfoil, es., r
Bache, Lemon & Co.,
Tin plates, cs., 4
Bank of Montreal, Bank of Montreal, Tin plates, bvs., 5285 Baring Bros. & Co. Tin, slabs, 1664 Brown Bros. & Co. Tin, slabs, 1506 Bruce & Cook. Tin plates, bvs., 886 Bvrne, Jos. & Co. Tin plates, bvs., 378 Black taggers, bvs.,

Black taggers, bxs., 231
Cort, N. L. & Co.
Tin plates, bxs., 525
Dale, John G.
Tin plates, bxs., 2835
Dickerson, Van Dusen & Co.
Antimony, esks., 17
Tin plates, bxs., 310
Tin, ingots, 325
Duran, J.
O'd type, cs., 8
Hibbard, 5pencer & Co.
Tin plates, bxs., 175
Hondley & Co.
Copper, bbls., 11
Lamarche, H.
Zinc, csks, 155
Meyer G. A. & E.
Zinc, csks, 155
Meyer G. A. & E.
Alexandreh, H.
Wathlibe bismuth, bbls., 4
Metallic bismuth,
Cs., 4
Phelps, Dodge & Co. Saxton & Seatonry
Steel wire, pkgs.,
Schoverling, Daly
Gales
Arms, es., 7
Hdw., pkgs., 3
Mdse, pkgs., 14
Schuyler, Hartley
Graham.
Mdse., pkgs., 12
Singer Mig. Co.
Mdse., pkgs., 12
Singer Mig. Co.
Hdw., bxs., 2
Struller, Lau & Co.
Hdw., bxs., 2
Rothschild, L. & Bro.
Hdw., cs., 2
Taylor, Thos.
Cutlery, pkgs., 2
Ter, Knile, J.
Hdw., cs., 1
Thompson, C. M.
Wire rope, csks.,
Ward, Alsine,
Hdw., cs., 1

Phelps, Dodge & Co.
Tin plates, bxs., 6141
Bar tin, bbls., 10
Anthmony, csks., 25
Tin, ingots, 500
Spelter, plates, 1749
Western Transportation.
Co. Wire rope, csks., 18
Ward, Alsine,
Hdw., cs., 1
Wetzlar, M.
Mdse., pkg., 1
Webusch & Hilger
Hdw. Co.
Hdw., cutlery and
annvils, pkgs., 329
Williams & Guion
Anvils, 60
Witte J. G. & Bros,
Mdse., pkgs., 2 Co.
Tin plates, bxs., 2778
ndmuller, Louis &
Roelker,
Sheet zine, csks., 35

Sheet zine, Order, Black tag., bxs., 166 Leat pigs, 392 Tin, bols., 5 Tin, ingots, 2440 Tin plates, bxs., Mdse., pkgs., 7 Wolff, H. & Co. Wolff, H. & Co.
Mdse, pkgs, 2
Wolff, R. H. & Co.
Gun barrels, bales,
Wolff, S. N. & Co.
Brassware, cs., 15
Wright, Peter & Sons
Arms, cs., 5
Order, Tin, slabs, 3682 Tinfoil, cs., 11 Steet.

Naylor & Co.
Bundles, 24
Cases, 21
Prosser, Thos. & Sons,
Bars, 35
Syring steel bdls., 62
Tyres, 24
Wollf, R. H. & Co.
Cases, 17
Order,
Bars, 12
Bundles, 123
Cases, 3
Cases, 8
Cases, 8
Cases, 9
Serap, tons, 175
Steel rods, bulls., 50 Steet. Arms, cs., 30 Coal, tons, 504

Wire rope, coils, a Iron. Lang, W. Bailey

PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St. PHILADELPHIA, October 7, 1872. Pig Iron.—The market may be called steady and firm, but there has been no ad-vance in prices during the week, and there are indications of a disposition to await further developments. Consumption shows no decrease whatever, but the heavy purchases of foreign Iron are beginning to be felt, and there is much less anxiety among buyers than appeared a couple of weeks back. There is no uneasiness in regard to a retrograde movement, but consumers are finding new sources of supply, and at the range of prices now current there is not much danger of the market breaking away from them. The immediate future unquestionably depends upon the condition of the British markets. The upward tendency of prices here has already been arrested by shipments from abroad, and if continued on a target of the prices have been arrested on a farrest of the shipments from abroad, and if continued on retrograde movement, but consumers are a large scale may lead to a slight reaction.
It is already reasonably clear that our own furnaces cannot for the present fully meet the demand, and nothing could have averted an Iron famine but prompt shipments from Ptlm., gals. 97,215 7,004

Vigo.

Ptlm., gals. 24

Hayti.

Nails, kegs. 40
Hdw., 08. 2
Nails, cs. 20
Pumps, page. 1
Ptlm., gals. 13,70
Zinc, csk. 1
Fowder, lbs. 127

Oporto.

In Iron famine but prompt shipments from abroad. For the present, therefore, it seems abroad that values here will be governed by the cost of Iron in Europe, and it may require several weeks before this point can be tully established. From the best English authorities we learn that Pig Metal can be delivered at a fair profit at about \$25 to 528, and if the American market will afford a still higher perce, so much the more will be forwarded.

There is a general impression here among the best informed parties in the trade, that

absorb Scotch and English Iron. The con-sumption bids fair to exceed anything ever known in this country, so that although the probability of a decline is somewhat remote, there does not appear to be much prospect of a further advance for the present. Forge Iron is still very scarce, and com-mands extreme prices, but we understand that several furnaces now running or Bessemer are to be turned on Mill Irons, which seem likely to be in special demand for some time to come. Heavy sales of for-eign Bessemer Iron have been made during the week at about \$28, and there is a fair prospect that all descriptions of Iron will be supplied and consumed without very much change from present values. Since writing the above the market seems to have become more active, and sales have been made at slightly higher figures than quoted in our last report. This is said to be due to an advance in foreign markets and the with-drawal of several lots held here on English We note sales of soo tons Chickin account. We note sales of 500 tons Chickles at \$30 at furnace, Sheridan at \$32, and the markets strong at the following quotations, viz: No. 1 Foundry, \$30 @ \$31; No. 2, \$28 @ \$29; Gray Forge, \$28; Gartsherrie, \$28.50; Glengarnock, \$27.50; Eglinton, \$26

Blooms.-The demand has been very ac Blooms.—The demand has been very active and prices have been advanced, as shown in the following quotations: Sunken Scrap Blooms (2464 lb), \$45 @ \$47.50; Northern Ore Blooms (2240 lb), \$40 @ \$43; best quality Charcoal Billets (2240 lb), for wire and steel purposes, \$65 @ \$67.50; Bars, \$70 @ \$72.50; Sheet Iron Blooms, cornered (2464 lb), \$60 @ \$65; Coldblast Charcoal Plate Blooms, \$60 @ \$62.50; run-out Anthracite. \$52.50 @ \$55. run-out Anthracite, \$52.50 @ \$55.

Muck Bars .- The market is bare of stock and buyers appear to have abandoned all hopes of placing orders at reasonable rates. Sales are reported at \$43 @ \$45, but, in the absence of offerings, prices are nominal.

Structural Iron.-The demand continues to increase in activity, and large orders are on the market, in addition to important contracts already closed. The heaviest amount was 3000 tons to the Pennsylvania Company for its Elevated Railway in this city. This was taken by Philadelphia firms, who are daily receiving applications for large quantities of shapes, which it is almost impossible to supply within the time specified. Prices show a further advance, and Angles are now quoted 3.8¢ @ 4¢; Beams, Channels and Tees, 4.2¢ @ 4.5¢

Sheet Iron.—The demand shows no abatement, and under an urgent pressure from buyers, prices have again advanced, and may be quoted \$5 per ton higher than on this day week. It is difficult to give any definite idea of prices, as they are subject to change from day to day. Anything that manufacturers have in sock may be secured at about the following quotations, but orders to be filled hereafter are subject to special arrangements with the manufacturers. Common Sheet, No. 20 to 23, 5.2¢ No. 24 to 28, 5.5¢: Best Refined (\$\text{\$\text{\$\frac{\psi}{6}}\$}\$, \$\frac{\psi}{5}\$, \$\frac{\psi}{5}\$, \$\frac{\psi}{6}\$\$, \$\frac{\psi}{6}\$\$; \$\frac{\psi}{6}\$\$, \$\frac{\psi}{6}\$\$; \$\frac{\psi}{6}\$ second quality, 20 %.

Plate and Tank Iron.—The market is again firm and active, with a further advance in prices of about \$5 per ton for the week. Applications for Plates for early delivery are both numerous and urgent, but manufacturers appear to be unwilling to enter into further contracts until values be come more settled. The outlook is very promising, and the Plate mills will have all promising, and the Plate limits will have all the work they can attend to for some time to come. We quote Common Plates and Tank, 4.¢; C. No. 1, 4½¢; C. H. No. 1 Shell, 4.5¢; Flange, 5.5¢; Solid Fire-box, 4.5¢; Flange, Best Bloom, 7¢.

Bar Iron .- There is no change in price but as the demand continues urgent, with prospects of its permanence, manufacturers are not pushing sales, believing that values will be maintained, and possibly advanced rather than otherwise. Sales to a considerable amount have been made at 3¢, and large orders are ready to be placed at that figure at first opportunity. The mills are all fully employed, and prospects are in every respect encouraging. We quote 3¢ as an inside figure; market firm. [Bar Iron manufacturers, as will be seen in another column, are invited to attend a convention, to be held in the parlor of the American Iron and Steel Association, 265 South Fourth street, Philadelphia, on Thursday, October 16th, 1879, at 1 p. m., sharp.]

Steel Rails .- There is no change of imsteel Kalls.—There is no change of importance to report, but we understand that for early delivery \$52 @ \$53 has been paid, with plenty of business offering at same price. The mills are full of work, however, on contracts entered some time ago, and seems impossible to accept large orders u less for deliveries in the distant future. quote \$50 @ \$53, at mill, which may be regarded as a fair average at which busines has been done during the week.

Iron Rails.—The demand has been more active during the past few days, but we have not heard of many orders being placed, as the mills are already full of work, and, with the high price demanded for raw ma-terial, there is very little margin at present quotations. Light sections command from \$48 to \$50 at mill, 50s about \$47, with sales of small lots of light Rails as above quoted, and one transaction of considerable amount

market other than our own can be found to price manufacturers are firm. The demand is less active, however, as many parties bought before the advance.

PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, Pittsburgh, Pa., October 7, 1879.

There is continued activity in manufact turing, although the Iron business is not so much excited as it has been, and the demand for Pig has fallen off somewhat. Nearly all kinds of skilled labor has been advanced but some corporations and firms have not as yet increased the wages of common laborers. There are but few idle men. All our manufacturing establishments are in operation. many of them working up to their full ca-pacity, and general business is good in con-

Pig Iron.—There has been a lull in the market since the date of our last report, as was to be expected, in view of the fact that was to be expected, in view of the fact that consumers generally are pretty well stocked. They have been buying steadily for about three months, and some of them claim to have enough bought to last them until the close of the year. Moreover, the "lull" has caused those who were disposed to buy to held off to see what its effect will be appear. hold off to see what its effect will be upon the market, and the result is a comparatively light demand. A commission man remarked to your correspondent yesterday that it was almost as hard to effect sales now production looked for before long, in conse-quence of the scarcity of Ores, furnace quence of the scarcity of Ores, furnace men can see nothing discouraging in the immediate future. There is more inquiry just now for good red-short than any other kind, as it is wanted for mixture, to bring up the quality of poorer stock, with which the mills are well outpiled, and being scarce it is held with considerable firmness, and at very full brices. Bituminous Coal Smelted Irons may be fairly quoted as follows: Foundry, \$3 @ \$32, cash, Mill Red-Short, \$31 @ \$32; do Neutral, \$29 @ \$30; Bessemer, \$34 @ \$35—sales of the latter are reported at the furnaces in the Shenango and Mahoning Valleys at \$35, to go West, deliverable at furna Eastern Coke Irons, from native ores, \$ @ \$32 for Foundry, and \$29 @ \$30 for Mill. Anthracite—Mill Neutral, \$29 @ \$30. The market here is almost bare of Charcoal Hanging Rock, warm blast, \$34 @ \$35 for No. 1 Foundry.

Manufactured Iron.-While orders are ot coming forward as freely as they did a few weeks ago, the mills are all very busy some of them are obliged to refuse orders, and prices are firm. The feeling appears to have gone abroad that the Pittsburgh mills have filled their order books at prices much below those now carried. While it is much below those now carried. While it is true that they booked a good many orders at prices much below these now ruling, it is also true that, as a rule, they took the pre-caution to buy Pig Iron at the same time, and consequently will have a margin for profit on their low-priced contracts. We continue to quote Merchant Bars at 3¢, 60 days, with 2 ½ off for cash. Skelp Iron is in active demand, with sales at 3¼¢, and some are asking 3½¢. Hoop Iron is firm

Nails.—The Pittsburgh factories are all in operation, and manufacturers are all in operation, and manufacturers are refusing to book any orders at the current low prices. There is a fair demand, and stocks in first hands are very light.

Rallway Spikes .- The demand keeps up well for the season and prices are firm, but unchanged; 3\$, 30 days, for immediate, and 3\$\forall \text{f} for future delivery. Business in all kinds of railway supplies has been unusually brisk all this year.

Horse and Mule Shoes.-There is a fair business for the season, but no recent change in prices. We quote: 100-keg lots, \$3.50 @ \$4.50 cash; larger lots special rates. The busy time is over for the present.

Wrought Iron Pipe. - There has been a urther advance and no abatement in the emand. The mills are all behind their orders and have no stock. The advance since the upward movement commenced has been more than 100 per cent., for the enhanced cost does not appear to have had any effect on the demand, which has been remarkably active since early in the summer. We now quote discounts on Gas and Steam Pipe; 25 per cent. on lots of over 10,000 feet; Boiler tubes 25 per cent. off; Oil Well Casing, 80¢ net; ditto Tubing, 22¢ net. The inquiry at \$3.25; Railroad Spikes, \$3.25; Track for Casing and Tubing is only fair, owing to the unsatisfactory condition of the oil busi-

Steel.—There is a continued active demand for all kinds of Merchant Steel, and there is likely to be until the close of the year. Some of the mills are now unable to keep up with their orders, and the situation in regard to prices is more satisfactory since the recent meeting in Philadelphia, which is to be followed by another on the 10th inst., at the office of the Gautier Steel Company,

new York, when some additional changes in the list will probably be made.

Ralls.—There have been no recent sales of Steel Rails made here, and the mills are refusing to quote prices for the present, owing to the uncertainty in regard to the cost of production. Old Iron Rails have been out of this market recently, and, in the absence of sales, we continue to quote nominally at \$34 @ \$35.

of small lots of light Rails as above quoted and one transaction of considerable amount at \$47 for 50s, all at mill.

Old Rails.—The market has been steady during the week, and a considerable amount of business has been done at \$31, with \$12 asked, and sales reported at about that figure, which, however, are subject to confirmation. There are no lots on the spot, and it is likely that higher prices will be quoted next week, as the demand shows no abatement, and prices are said to be higher on the other side, and at other points.

September 21.—The essential features of this market have been without change since our last, and with all kinds of American Fig. Iron scarce and wanted, still higher prices will be quoted next week, as the demand shows no abatement, and prices are said to be higher on the other side, and at other points.

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Iron there is not nearly so much Scrap being

Window Glass .- The market is in a mor satisfactory condition now than it has been for some time, and the outlook is encour-aging for a brisk fall trade. Owing to a recent advance in French Glass, American is firmer, and, in a jobbing way, a shade higher. The labor question, which for a time menaced trouble, has been settled for There is no stock in first hands The demand ever since the factories started up, in the early part of September has absorbed the entire production. Carload lots, 70 and 10 % for single and 70 and 10 and 10 % for double strength.

Coke.-While the production in the Conllsville region is large and increasing estimated now at 32,000 tons per week) he demand continues equal to the supply The consumption is always larger during the fall and winter, but the starting up of a number of idle furnaces makes it larger than usual just now, and it will no doubt continue so all winter. Prices remain un-changed at \$1.20 @ \$1.30 per ton, delivered free on cars at ovens.

Coal.—Mining operations in the Mononga-hela and Youghiogheny valleys have been generally suspended, owing to the suspen-sion of navigation. All the boats and barges in which Coal is transported down the river are loaded. The quantity loaded and ready to go on the first rise is estimated at 10,000,000 to 12,000,000 bushels, and while those operators who have Coal at New Orleans do not want to see a rise before December, others who ship to Cincinnati, Louisville and St. Louis, are becoming very impatient, as there is no Pittsburgh Coal in first hands in those markets and the price has advanced materially. The consumption this fall will no doubt be larger than for me time past, and prices will certainly rule

igher in consequence.

Petroleum.—The market has been less active and weaker the past week and prices are a shade lower. The recent spurt was the result of speculation. There may be oc-casional fluctuations in Oil between now and the close of the year, but there is nothing in the general position of the market to war-want an advance, as the consumption is more likely to fall off than increase.

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., CHATTANOOGA, Oct. 6, 1879.

General business steadily improves as the fall advances, though the improvement would be more marked but for the hot, dry weather of the ten weeks past. The drought has not hurt but really helped most crops. Its principal damage has been the reduction of the rivers to little brooks and the accu-mulation of deep dust on all streets and There is not a steamboat running in all this section, because there is no water to run on. The general iron trade is not uite as excited as it was ten weeks ago, but all articles tend to advance.

Pig Iron,-We make no change in ares, though quotations must still be re-garded as mostly nominal. The bareness of the market in some grades, with the orders booked in July for delivery some months ahead by several furnaces and other causes, have tended to stiffen the views of those who have any iron to sell. There is no question quantity of Foundry Coke could be placed at something above our outside figures.

Coke Irons—No. I Foundry, \$21 @
\$25; No. 2, \$17 @ \$20; Cray Forge, \$10
@ \$20; White and Mottled, \$16 @ \$17.

Hot-Blast Charcoal—No. I Foundry, extra, \$22 @ \$26; ditto, \$20 @ \$22; No. 2 Foundry, \$xtra, \$22 @ \$26; ditto, \$20 @ \$22; No. 2 Foundry, \$17 @ \$20; White and Mottled, \$16. Cold Blast Charcoal—Car Wheel Metal, \$22.50 @ \$27.50; do., Extra Standard, \$24 @ \$29; Forge, \$17 @ \$22.

Muck Bar, &c .- None in market. Old Rails, \$24 @ \$26; Wrought Scrap, \$18 @ \$20; Old Car Wheels, \$10 @ \$20. Old Rails and Wrought Scrap are very stiff at quotations, with advancing tendencies.

Ores.-Brown Hematite, 50 to 56 %; per ton, \$1.75 @ \$2.25. Red Fossiliferous, 50 @ 56 %; per ton, \$1.20 @ \$1.60. The above prices for ores delivered in Chattanooga on ars or on the wharf from flat boats.

Nalls.—We continue to quote at \$3.50 ates, though they are very stiff, and makers refuse to quote them a single day ahead at that rate. They will go to \$3.75 within the

Manufactured Iron-Tends to advance Bars will probably go to \$3.50 before the end of next week. We continue to quote Bars

Coke.—We quote 10¢ per bushel for Washed Foundry. Furnace at \$2.25 per ton on cars in Chattanooga. Coke will probably advance before the winter sets in, as the producing capacity in the district will hardly be able to meet the increased demand.

Coal.-The stiffening market for Coal noted last week continues. We quote: Best bousehold Coals, strictly lump, at 12½¢ al 14¢, delivered. Run of mine to manufac turers, \$1.25 @ \$1.75 per ton.

Pig Lead-5¢; Ingot Copper, 19¢. Iron Rails.—The mills here and at Atlanta are not booking orders, being behind and running full to catch up. We quote 35-lb. Rails at \$45 @ \$47, and larger sizes at \$42 @ \$44 per ton

Steel Rails.-We quote at \$47 at mill. and no supply for transient buyers

worthy of notice that since the advance in markable features of the market, but sales markable features of the market, but sales have been made of large parcels on Boston account at the outside figure quoted. Freights to Boston are strong at \$1.40, and spot lots of Pig are quoted at \$30 @ \$22 for No. 1, and \$29 @ \$31 for No. 2. Scotch Pig—The importations this week have been 1715 tons, and there are large quantities now on the way here, the market, however, being well cleaned up from week to week

being well cleaned up from week to week. We quote Eglinton at \$37; Gartsherrie, \$28 and Coltness at \$29 @ \$30. Old Rails have sold at \$34 @ \$36 for American, and the latter is the asking price at this point to-day. Lots of foreign rails now on the way here and deliverable at buyers' option either at Boston, New York or Philadelphia are reported to be available at \$30.50. Manufac-tured Iron.—Ordinary refined iron contured Iron.—Ordinary renned from continues to meet with an active inquiry at 3¢ B for large lots either from store or mill and 3¼¢ in a retail way. Plate and Tank have still further advanced, and to-day's have still further advanced, and to-day's mill prices are firm at 334¢ for tank; 4¢ for C. No. 1; 4¢ for C. H. No. 1 Shell, and 5¢ for C. H. No. 1 Flange. Store prices are 4¢ for Tank; 4¼¢ for C No. 1; 4½¢ for Shell, and 5½¢ for Flange. Sheet Iron meets with a continued active inquiry from the Boston stores, and we quote 4¢ @ 4¼¢ for Nos. 12 to 18. for Nos. 12 to 18, 444 @ 412 for Nos. 20 to 24; 444 @ 5 for Nos. 25 and 26, and 6 for Refined. The demand for Galvanized and Russia Iron is equally active, and prices have advanced to 81/2 ¢ (a) 90¢ for Nos. 14 to 20; 9½¢ for Nos. 20 to 24 10½¢ for Nos. 25 and 26; 13¢ @ 14¢ fo Russia perfect, and ½¢ less for do. No I stained. Steel is in good demand from Boston stores, and prices are advancing in sympathy with the other articles under this head. We quote American Tool Steel at $12\frac{1}{2}$ @ 13 ; English do. at 14 @ 15 ¢; American Spring Steel at 51% @ 61%; English do. at 7% @ 8¢; Tire Steel at 4¢ @ 4½¢; Bessemcr Machinery at 5¢ @ 6¢, and Crucible do. at 6¢ @ 7¢. Copper has been strong at 19¢ for Lake, at which figure there have been sales both of futures and of spot lots, and there appears to be none avail-able under that figure. The Boston store able under that figure. The Boston store price has been 19½¢. A dispatch from New York yesterday afternoon reported bids of 20¢ refused; and if true, no further stove lots would be available under 20½¢. Manufactures are without further change, and continue to quote: Copper Sheathing, 24¢; Braziers, 26¢; Bolts, 26¢; Bottoms, 25¢; American Yellow Metal Sheathing, 14¢@ 15¢, and English do., 12¢ @ 12¼¢, in bond.
Antimony is firm at 17½¢ @ 18¢. Lead has continued to gain strength, and there have been sales of 400 tons at 4¼¢, with no more available under 4½¢. The Boston store price is 4¢ @ 4¾¢. Manufactures are unavailable under 4½¢. The Boston store price is 4¢ @ 4¼¢. Manufactures are unchanged, and we quote: Lead Pipe, 5½¢; Tin-Lined Pipe, 12¢; Bar Lead, 6¢; Sheet Lead, 6¢; Block Tin Pipe, 30¢. All of these are subject to the usual trade or 10 ½ discount. Spetter has sold at \$6.20 % cwt. for car-load lots, and is quiet and firm. Sheet Zine is in fair demand at 8¢ from store. The last atken a fresh start and advanced 3½¢. has taken a fresh start and advanced 3/¢ @ of in sympathy with the favorable adv from abroad, and we quote Straits at 1814 for large lots, and 1816 for smaller parce for large lots, and 183\$\$\phi\$ for smaller parcels. We quote: Banca, 20\$\phi\$ 21\$\phi\$, and English L. & T., 16\$\$\phi\$\phi\$ in 17\$\phi\$\phi\$. Tin Plates have further advanced, and are strong and active at \$7\$ (@ \$7.50 for Charcoal I. C.; \$5.75 (@ \$6.25 for Coke; and Charcoal Ternes at \$8.25 for M. F., and \$6.75 for ordinary do.—Commercial Bulletin.

CINCINNATI.

Messrs. E. L. HARPER & Co., under date men are even talking of \$50 and over as the figures Hot-blast Irons will reach this win-ter. Car Wheel and Malleable Irons are adter. Car wheel and Malicable from are advancing steadily, as indeed are all grades of metal. Our prices below, which are at a large advance all around, fairly represent the market to-day, but it is moving up so steadily that quotations are almost invariably too low before they can be got into print. On account of the light supply we are com-On account of the light supply we are compelled to materially shorten our list of

8	" C. C., No. 2	37.00 @ 38.00			
	Hocking Valley S. C	35.00 @ 37.00			
	" No. 2	34.00 @ 36.00			
	Jackson County S. C., No. 1	34.00 @ 35.00			
i	NO. 2	33.00 @ 34.00			
8	Open Silver Gray	32.00 @ 33.00			
	FORGE IRONS.				
	Hanging Rock, No. 1 C. C.	33.00 @ 36.00			
1	Old Car Wheels, cash Pecham's Pat. Refined Steel Blooms. "double hammered	36.00 @ 38.00 60.00 @ 65.00 @			
CAR WHEEL AND MALLEABLE.					
3					
	Hanging Rock C. B	47.00 @ 50.00			
1	Southern and Western Brands				
- 1	Lake Superior	40.00 @ 42.00			
П	Salisbury	50.00 @ 55.00			

HOT-BLAST FOUNDBY.

BALTIMORE.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, Baltimore, reports us the following under date of Oct. 6: Manufactured Irons continue ruling firm at quotation figures, with demand increasing rather than abating. Horse and Mule Shoes advanced the past week 50¢ \$\overline{e}\$ keg; also Putnam Horse Nails, 25¢ \$\overline{e}\$ box, accompanied with heavy increasing inquiries

	for both.	
	Ref. Bar Iron, 1 to 6 by 34 to 1 10 20 3 3 3 3 4 to 2. Round	314
	Hoop Iron, 11/4 wide and upward. " 33/4 (b) Band Iron, from 11/4 to 4 in, wide. " 31/4 (b)	
	Horse-shoe Iron. " 3½ @ Norway Nail Rods. " 5 @ Black Diamond Cast Steel. " 12½ @	33/4 9
l	Machinery Steel 7	8 ¢
ĺ		356
	" Mule shoes 50 9 8 7	127
ŀ	Putnam Horse Nails 10 to 10 20 21 22 Globe Horse Nails 10 to 18 10 20 21	240

ket as follows under date of Oct. 6: The Iron market continues active, and prices firm at about following rates: altimore Charcoal Wheel Iron....

Refined Blooms

LOUISVILLE.

Messrs. Gro. H. Hull & Co., under date of Oct. 6, write us as follows: The market is ery strong and has advanced from \$5 to \$8 ton during the last week. Nearly all the are for cash, and we revise quotations

on this basis :
FOUNDRY IRONS,
No. 1 Hanging Rock, Charcoal
Coke
Coke
MILL IRONS.
No. 1 Charcoal, Cold-short and Neut'l. 31.00 @ 32.00 No. 1 Stonecoal and Coke, Cold-short
and Neutral 30.00 31.00 No. 2 Stonecoal and Coke, Cold-short
and Neutral 29.00 @ 30.00
No. 1 Missouri and Indiana Red-short. 32.00 @ 33.00 White and Mottled, Cold-short and
Neutral 22.00 @ 24.00

news of the condition of trade and agricul-ture at home. All order liberally and do ture at home. All order liberally and do not appear to mind the high prices as much as they did the low ones that prevailed a short time ago. The few who have argued that the large advance in iron is in the nature of a violent reaction from extreme depression, and therefore cannot be long sustained, are being reassured by the similar advances now taking place in other lines of goods. Other industries are beginning have their "boom" likewise, and with the costly experience that iron men have had the past few years, it is not likely that an undue proportion of the idle capital in the country will be rashly embarked in the country will be rashly embarked in the manufacture of iron. A general advance in prices means of course a decline in the purchasing power of the dollar, and this is considered justification for the numerous strikes of workmen which we hear of. At this point the troubles in the furniture and stove trade have been at last settled by conceding the demands of the workmen. Pig iron has been excited and higher during the past week, but manufactured iron may be quoted on the same basis as last report. Foreign irons and steel have advanced, and American steel and Norway bolts have followed. Springs and axles, spikes, rivets, fence wire, sheet iron, both galvanized and black, are all higher than at date of last writing.

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows under date of Oct. 6: Sales for past week about 200 tons Forge and Foundry Pig Iron. The market is quieting down. Most manufacturers have is quieting down. Most manufacturers have supplied themselves for the next 90 days, and now prefer to abide the development of the market for the opening new year. Nails Messrs. E. L. HARPER & Co., under date of Oct. 6, write as follows: The market scontinues very strong with light offerings, sellers being generally reluctant to accept orders at present prices. The demand is becoming general and steady at the advanced trates, as consumers realize the market has not yet reached the limit in prices. Old Iron processors talking of \$\frac{8}{2}\text{ of the opening new year.} \text{ Nails have advanced to \$\frac{3}{2}\text{ of per keg for standard sizes, and Cold-blast Charcoal, Neutral, to \$\frac{3}{2}\text{ and \$\frac{3}{2}\text{ of the rwise quotations remain as at last report.}

1	at last report.
)	
	Anthracite, No. 1
	No. a 28.00 (6 30.00
,	No. 3
	Mottled and White 25.00 @ 27.00
ı	Va. Cold-blast Charcoal, Cold-short. 28.00 @ 31.00
	" Neutral 38.00 @ 39.00
	Va. Warm-blast " Red-short 20,00 @ 22,00
).	CHA THEMS
۱	Wrought Scrap No. 1 24.00 @ 25.00
1	Machinery " No. 1 20.00 (6 21.00
ı	Richmond Refined Bar Iron, Stand'do3 @
	Old Dominion Nails, per keg 3.60 @
١	Horse Shoes, Tredegar 3.75 @
1	Mule " 4.75 @
1	Freights to New York, \$1.90 for 2240 lbs. by sail.

FOREIGN.

GERHANY

HAMBURO, Sept. 23, 1879.—Metals.—The general situation of the country, so close upon the fall season, is by no means an unfavorable one. Germany has been one of the few countries this year with average crops, and in point of a food supply at reasonable prices, we are well off comparatively speaking. Nor is our commercial and industrial situation such as to give rise to apprehensions; on the contrary, whatever there is of a revival finds us well prepared, except in the magnitude of stocks of metals in dealers' and consumers' hands, which are light, and the advance in metals is, therefore, fully justified among us, backed, as we trust it will be, by a good consumptive demand. Copper.—There has been growing up a much better feeling; there is some speculative inquiry and a steady demand for consumption. Prices are tending upward. Berlin quotes good qualities English and Australian 62 50 @ 65 marks the 50 kilos., and Mansfield 65 @ 65.50. We are firm here, but not active, and quote [Dron theim, 64; Minnesota, 85; Hecla, 68, and English Tough Cake, 62 @ 64. Tin.—The metal is improving most steadily. Berlin quotes Banca 74.75 @ 75 marks, and English 73.25 @ 75; English Refined, 76 @ 77. Lead—Forms an exception, and is by no means buoyant. Berlin quotes Tarnowitz, Hartz and Saxonian 15 @ 15.25. We are here with English Pig 16.50 @ 17; do. Sheet, 17 @ 17.50; German Pig. 14 @ 14.50. and Spanish 18. Speiter.—Our markets continue firm and rising. Berlin quotes Siesian 20 @ 20.75. At Breslau Godulla is being paid 18.50, and here we quote spot and to arrive 19.50 @ 20 marks the 50 kilos.

John Williams, 115 East 13th street, this city, manufacturer of ornamental brass goods, reports trade driving. He is now making some very fine gas chandeliers, with sawed-work ornament, besides an extensive contrary, it is more popular than ever, and as it is the most beautiful of the metals after gold, it will never cease to be desirable





The demand for Scroll Saws has become so large that most Hardware dealers are getting in the way of keeping them.

The trade commences in early fall and lasts all winter, thus helping business in the dullest season. There is probably not a Hardware store in the land but that could sell

dullest season. There is probably not a Hardware store in the land but that could sell some of these goods.

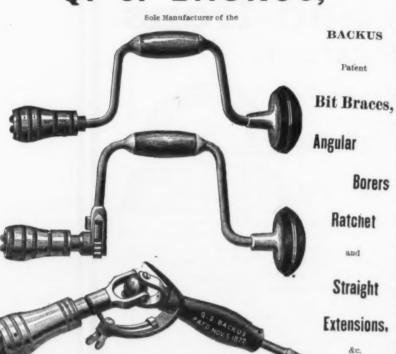
We are headquarters for hand and foot-power Saws, Saw Blades, Wood, Designs and all things pertaining to this business. The Lester Saw at \$8 and Rogers Saw at \$3 are now in universal demand. The Lester Saw consists of a Scroll Saw, Circular Saw, Drilling Attachment, Emery Wheel, Dust Blower, Turning Lathe and Tools, extra Saw Blades, Drill Points, Designs, Screw Driver, Wrench, &c. It has been greatly improved since last year, and is a very perfect machine. The Rogers Saw consists of a Scroll Saw, Drilling Attachment, Dust Blower, Designs, Drill Points, Saw Blades, Wrench, &c. The Saws are nicely boxed, without extra charge. We warrant them in all respects. They give dealers no trouble.

MILLERS FALLS CO.,

74 Chambers Street,

NEW YORK.

O. S. BACKUS,



No. 102 Chambers Street, NEW YORK. COVERT'S Patent Improvement in No more Splicing or Winding Ends with Cord.

Rope Halters, Horse Ties, Cattle Ties, Halter Leads, &c., made by clamping the lap with steel rings, as shown in cut. Also, clamping the end with a ring to prevent unbraiding.

This is all accomplished by machinery, and a superior article can be made at so much less cost, it will not pay any one to make up goods the old way. We are now prepared to furnish the trade the cheapest and best Rope Halters ever made. No. illustrates the twisted and irregular form of the spliced Halter; also the insecure method of whipping the end with cord, which invariably comes off, and allows the rope to untwist. No. 2 Illustrates the New Halter. It is made by clamping the laps with steel rings. The end is also secured with a steel ring, which will remain as long as the rope lasts. We have also a full line of

COVERT'S HORSE AND MULE JEWELRY.



NATIONAL

FINISHED

[BRIGHT OR BLUED]



These nails are made of the best brands of NOR-WAY IRON, and are guaranteed to be equal to any in the market.

NATIONAL HORSE NAIL CO., VERGENNES, VT.

HORACE DURRIE & CO., Agents, No. 97 Chambers St., New York

A. F. PIKE.

East Haverhill, - New Hampshire,

Manufacturer and Wholesale Dealer in Scythe, Axe, Knife and Hacker STONES



The Oldest Shot Tower in America.



Whistles

American Chilled Shot.

Rivaling the English and all Others. STANDARD DROP & BUCK SHOT AND BAR LEAD.

121 Walnut Street, Philadelphia



SHINGLES

above cheaper, me slate, cheaper, me slate, cheaper, me slate, cheaper, therefore lays much closer, therefore can put them crack, &c. Any carpenter can put them crack, &c. Any carpenter can put them crack, and description and price list to description and price list of description and de

Grant Fan Mill & Cradie Co.

Grant's Grain, Coffee, Rice, Cochineal and Pimento Fans,



TURREY WING GHAIN CRADLES,
4, 5 and 6 fingers.
GRAPE VINE GRAIN CRADLES,
4 fingers.
SOUTHERN PATTERN GRAIN
CRADLES,
4, 5 and 6 fingers.
All of a superior quality.
None genuine unless marked
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and price list.
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MEI ROSE Respectage. Co. N. V.

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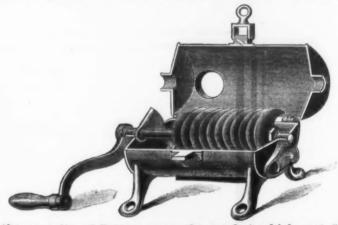
JUNE 26, 1866, MARCH 23, 1869, REISSUED 1870.

NOVEMBER 10, 1863, FEBRUARY 23, 1864, REISSUED JUNE 1, 1869, IMPROVED AUG. 1, 1877.

The back thrust when in use borne by the SHANK instead of the Handle. None genuine unless stamped "L. COES & CO." Worcester, Mass.

Warehouse, 97 Chambers St., & 81 Reade St., N. HORACE DURRIE & CO., Sole Agents.

THE PENNSYLVANIA MEAT CUTTER



Has the capacity of Cutters upon the market which cost 60 per cent. more money.

PRICE LIST.

No. 1, containing 8 Steel Knives. 2, 11 3. " 12 " os. 1 and 2 are packed ½ dozen in a box; No. 3 packed ½ dozen in box, incount to the trade so and 10 per cent.

LLOYD, SUPPLEE & WALTON, Philadelphia.

HORACE DURRIE & CO., New York City.

EAKING

We call the attention of the trade to the whistle for speaking tubes, represented in above cut, as being superior, in a mechanical point of view, on account of the

PATENT ELLIPTIC SPRING,

which is much less liable to break and get out of order than the spiral spring usually used. These whistles being made entirely of metal, are very strong and durable. They are offered in a variety of styles at very reasonable prices. Send for illustrated circular and quotations.

We also invite an examination of our PATENT HEVERSHLE DOOR LOCKS, which by their peculiar construction, combine simplicity, strength and durability. In these Locks the combination of the Patent Lever and Spring renders the latch movement very easy and prompt in action. illustrated catalogues and price lists furnished on application.

TRENTON LOCK AND HARDWARE CO.,

Manufacturers of Superior Building Hardware. Trenton, N. J.

JAMES M. VANCE & Co., 211 Market St., Philadelphia, Pa.; JAMES MARSHALL, 48 Warren St., New York.

BRASS AND REAL BRONZE

ASTINGS

Also, White Metal Castings for Patterns.

PAYSON & CO.,

1319 to 1325 W. Jackson St., and 166 Randolph St.,

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CAUTION

Makers, Sellers & Users of Sad-Irons.

RE-ISSUE OF Mrs. POTTS' PATENT.

HOWSONS' PATENT and LAW OFFICES,

119 South Fourth St. Philadelphia. Messra THE ENTERPRISE MANUFACTURING CO. & AMERICAN MACHINE CO.

Gentlemen: - Compliance with your request for our opinion (for publication) relating to the sad-irons made by Williams & Son, of Chagrin Falls, Ohio, and by the Gold Sad-Iron Company, of Lockport, N. Y., has been delayed until we had completed our researches in the Patent Office, and until the grant of the Re-issue of Mrs. Potts' patent.

It is just as certain in our minds that both of these irons infringe your re-issued patent, as that they are imitations of the Mrs. Potts sad-iron.

We have before us a specimen of the Williams iron, and a copy of his patent, dated May 27th, 1879, the annexed cut being an exact copy on a reduced scale of one of the views in his patent.

The application for this patent was filed with

seven claims, the first of which was for "a sad-iron in combination with a detachably attached epicycloidal or semi-ellipsoidally shaped handle." All the claims were rejected, in view of several prior patents, including that of Mrs. Potts, and the applicant abandoned them all, and contented himself with a single claim relating to a special combination of parts with which the handle had no special This may be looked upon as an admission on the part of the patentee that Mrs. Potts' patent was a bar to a claim for the handle.

Both infringers have imitated the arched handle, the base, and other prominent features of the Potts'sad-iron, but the Gold Sad-iron Company have gone further, and imitated the cuts of your circulars.

The circulars of the Gold Company state that their iron was patented April 23d, 1867. (Lewis.)



We reproduce on a reduced scale one of the views in the drawing of this patent. which you will recognize as

much more like the prior patent of Kniffin, recently purchased by your firm, than it is like the imitation sad-iron made by the Gold Co.

The list of claims in the recently re-issued patent of Mrs. Potts, which was granted after the most thorough investigation, will afford better proof of the character of the infringement than any thing we can say, hence we send you a copy of these claims with a copy of one of the principal views in the drawings attached to the patent.

We think that any one, on examining these claims, will recognize many features contained in the Williams and Gold sad irons, and will agree with us that those irons are point blank infringements of your patents.

CLAIMS

Re-issued Patent of Mrs. Potts,

(Oct. 7, 1879. 8,925.)

Original Patent dated April 4, 1871.



First.—The combination of the wooden handle A, the top and legs of which form a continuous arch, rounded transversely, with the metal connecting plate B secured directly to the basis of the arch, and latching mechanism carried solely by the plate, all substantially as set forth.

Second.-The combination of the arched handle A of wood with a metal plate B, having inclined abutments or bearings for the said handle, substantially as specified.

Third.—The combination of the handle, the plate B, having inclined abutments recessed on the under side, and the screws a a.

Fourth.—The combination in a sad-iron of a base having in the top a recess and a cross-piece or bar therein, with a detachable handle carrying a fixed and movable jaw for seizing the said cross-piece or bar, all substantially as described.

Fifth.—The combination of the wooden handle and its plate B carrying a fixed jaw and a movable jaw with a base constructed for being locked to and released from the said jaws, all substantially as described.

Sixth.—The combination of the handle and its plate B, the hooked jaw D and pivoted lever C and its jaw with the base having a recess for receiving the jaw and cross-piece or bar adapted to the same, substantially as set forth.

Seventh.—The combination of the handle, its plate B and pivoted lever C with the spring f confined between the handle and its abutment on the plate, as set forth.

Eighth.—The combination of the handle and its plate B, with the lever C, pivoted so as to be moved vertically and having a projection j occupying a central position in respect to the handle, all substantially as set

Ninth.-The combination of the arched handle A, made alike at both ends and carrying centrally situated jaws with the base E pointed at both ends alike and having a central cross-piece or bar adapted to the jaws. all substantially as set forth.



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Hardware Specialties. American Machine Co., 1625 N. 4th, Phila	8
Hardware Specialties. American Machine Co., 1025 N. 4th, Phila American Tool Co., 105 Chambers, N. Y. Shepard Sidney & Co., Buffalo, N. Y. Spencre & Underhill, 44 Chambers, N. Y. Weeks A. A., 82 John, N. Y.	31 N
Covert Mfg. Co., West Troy, N. Y	21
Holt Hiram & Co., East Wilton, Me	34 N
Hinges. Staniey Works, New Britain, Conn	8 N
Hog Ringers, Chambers, Bering & Quinlan, Decatur, III Hoisting Engines, Makers of.	7 N
Hoisting Engines, Makers of, Crane Bros., Mfg. Co., Chicago, III	34 34
Hoisting Machines. Box Alfred & Co., 312 Green, Phila- Clem & Morse, 413 Cherry, Philadelphia. Harrington Edwin & Son, Philadelphia, Pa	35 0
Totten & Co., Pittsburgh, Pa	10
W. T. Wells, 78 Beekman, N. Y.	P
New York Handle & Mallet Works, 456 E. Houston	P
Horse Clippers. Boker. Hermann & Co., 101 & 103 Duane, N. Y Clark W., 232 Oxford, London, England	24 P
Horse Nails, Makers of. Ausable Horse Nail Co., Warren, N. Y. Bridgewater Iron Co. Bridgewater, Mass. FP Nail Co., Cleveland, O. National Horse Nail Co., Vergennes, Vt. Saranac Horse Nail Co., Platisburg, N. Y.	25 P
FP Nail Co., Cleveland, O. National Horse Nail Co., Vergennes, Vt.	. 6 P
Horse Shoes, Makers of. Burden Iron Works, Trov. N. V.	.12 P
Horse Shoes, Makers of, Burden Iron Works, Troy, N. Y Rhode Island Horse Shoe Co., Providence, R. I. Schoenberger & Co., Pittsburgh, Pa.	31 P
Pierce Geo, N., Buffalo, N. Y.	24 8
McLean John, 300 Monroe, N. Y.	12 N
Hydraulic Jacks. Dudgeon Richard, 24 Columbia, N. Y	. 9 P
Hydraulic Jacks. Dudgeon Richard. 24 Columbia, N. Y. Lyole, E. Co., 470 Grand, N. Y. Ice Cream Freezers. White Mountain Freezer Co., Laconia, N. H.	.33 P
Hartford Steam Boiler Inspection & Insurance Co.	-35
Iron Brokers. Boynton Geo. A., 70 Wall, N. Y. Etting Edward J., Philadelphia, Pa Hatry A. G., Pittsburgh, Pa.	4 P
Quincy John W., of William N. V	. 1
Iron Commission Merchants. Bailey J. F. & Co., 52 Wall, N. Y	, S
Iron Commission Merchants. Balley J. F. & Co., 52 Wall, N. Y. Lowe S. B., Canttanooga, Tenn. Richardson J. O., 322 Dock, Philadelphia. Wister L. & R., 337 Wainut, Phila.	. 6
Swan John F & Pro Classon Section 4	
Iron Dealers. Abeel Brothers, 190 South, N. Y.	4
Bonnell, Botsford & Co., Youngstown, O. Borden & Lovell, 70 and 71 West, N. Y. Carmichael W. J., 130 and 132 Cedar, N. Y	4 P
Williamson James & Co., 69 Wall, N. Y. Iron Dealers. Abeel lipothers, 100 South, N. Y. Bonnell, Botsford & Co., Youngstown, O. Bonnell, Botsford & Co., Youngstown, O. Carmichael W. J., 200, 200, 200, 200, 200, 200, 200, 20	4
Hoffman J. W. & Co., 208 S. Fourth, Philadelphia. Judson B. F., 457 and 459 Water, N. Y. Kane C., Pittsburgh, Pa.	4
Lundberg Gustaf, 38 Kilby, Boston, Mass. Ogden & Wallace, 85, 87, 89 and 91 Elm, N. Y.	4 B
Pullman J. Wesley, Philadelphia, P2 Quincy John W., 98 William, N. Y.	5
Wallace Wm. H. & Co., Albany and Washington streets, N. Y.	16 H
Warner A. B. & Son, 28 and 20 West, N. Y. Williamson James & Co., 69 Wall, N. Y. Whitney A. R., 58 Hudson, N. Y.	4
Iron. (Manufacturers' Agents.) Hoffman J. W. & Co., 206 S. 4th, Phila Levis, Henry & Co., Philadelphia, Pa	4 H
Iron, Manufacturers of. Albany & Rensselaer Iron & Steel Co. Trong N. St.	5 E
Bradley, Reis & Co., New Castle, Pa. Britton Iron and Steel Co., Cleveland, Ohio	4 B
Condit, Wick & Co., Cleveland, Ohio	4 3 4 8
Leonard John, 450 and 451 West, N. Y North Chicago Rolling Mill Co., Chicago, Ill.	4 8
Pricentx from Co., 4to Walnut, Philadelphia Portsmouth Iron and Steel Co., Portsmouth, Ohio, Roane Iron Co., Chattanooga, Tenn.	5 46
Rome Merchant Iron Milis, Rome, N. Y Rowland James & Co., 920 N. Delaware ave., Phila. Rowland Wm. & Harvey. Philadelphia	4 5
Shoenberger & Co., Pittsburgh, Pa. Taylor & Boggis, Cleveland, O. The Passaic Rolling Mill Co., Paterson, W. J.	6 8
Ulster Iron Works, oo Broadway. U. S. Iron and Tin Plate Co., Pittspurgh. Pa Wood Alan & Co., you Arob Philadelphia	44
Levis. Henry & Co., Philadelphia, Pa. Iron, Manufacturers of. Albany & Rensselaer Iron & Steel Co., Troy N. Y. Bradley, Rels & Co., New Castle. Pa. Britton Iron and Steel Co., Cleveland, Ohio. Burden Iron Works, Troy, N. Y. Condit, Wick & Co., Cleveland, Ohio. Burden Iron Works, Troy, N. Y. Condit, Wick & Co., Cleveland, Ohio. Houdlette & Ellis, Boston, Mass. Kirkpatrick, Beale & Co., Pittaburgh Pa. Leonard John, 40 and 41 West. N. Y. Phosnix Long Colling Hill Co., Chicago, Ill. Phosnix Long Colling Hill Co., Chicago, Ill. Phosnix Long Colling Hill Co., Contended Phila Portsmouth Iron and Steel Co., Portsmouth, Ohio. Rome Merchant Iron Mills, Rome, N. Y. Rowland James & Co., 520 N. Delaware ave., Phila Rowland James & Co., 520 N. Delaware ave., Phila Rowland James & Co., 120 N. Delaware ave., Phila Rowland Wm. & Harvey, Philadelphia Rowland Wm. & Harvey, Philadelphia Rowland Wm. & Harvey, Philadelphia Lyon & Boggis, Cleveland, O. The Passate Rolling Mill Co., Paterson, N. J. Ulster Iron Works, oo Broadway. U. S. Iron and Tin Plate Co., Pittsburgh, Pa. Vood Alan & Co., 51 Arch Philadelphia. Zug & Co., Pittsburgh, Pa. Iron, Planished Sheet, Monufacturers of, Wood W. D. & Co. Pittsburgh, Pa.	4 9
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Dission Henry & Sons, Philadelphia. Johan, Manylordurer, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20	DuBrui N. & Co., Cincinnati, O	Sec.
Hillebrand & Wolf, 108 & Sin, Philadelobia. 9 Konne & C.N. Swayer, N. Philadelobia. 9 Yale Look Mig. Co., 91 Chambers, Y. 3 Yale Look Mig. Co., 92 Chambers, Y. 4 Yale Look Mig. Co., 93 Chambers, Y. 4 Yale Look Mig. Co., 94 Chambers, Y. 4 Bills & Williams, 10 Piymouth, Brooklyn. 9 Hills & Williams, 10 Piymouth, Brooklyn. 9 Yale Look Will. 9 Yale Co., 94 Chambers, Y. 10 Yale Co., 94 Chambers, Y. 4 Yale Co., 94 Chambers, Y. 4 Yale Co., 94 Chambers, Y. 4 Yale Williams, Y. 7 Yale Co., 94 Chambers, Y. 4 Yale Co., 94 Chambers, Y. 7 Yale Co., 95 Chambers, Y. 7 Y	Johnson, Jr. Israel H. & Co., Philadelphia31 Leveling Instruments. Bicknell & Comstock, 27 Warren, N. Y	She
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Philadelphia	Chater R. Dundas, 187 Pearl, N. Y
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Garey & Moen, 234 W. 20th, N. Y	Tebbing. Merchant & Co 507 Market, Phila
Babcock & Wilcox, 30 Cortlandt, N. Y	Ventilators. Bracher Ventilator Co., 3 Park Row, N. Y
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Chester Steel Castings Co., Evelina, Phila., Pa. 36 Eureka Cast Steel Co., Chester, Pa. 36 Flags Stanley G. & Co., 216 and 218 N. 3d, Phila. 36 Pittsburgh Steel Casting Co., Pittsburgh, Pa. 36	Lewis John T. & Bros., 231 S. Front, Phila., Pa30
Flagg Stanley G. & Co., 216 and 218 N. 3d, Phila36 Pittsburgh Steel Casting Co., Pittsburgh, Pa	Hugunin Robt. B., Wethersfield, Conn.,24
	Window Springs, Makersoy.
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Moss r. W., so John, N. Y	Gautier Steel Co., Ld., Johnstown, Pa 28 28
Wolff R. H. & Co., 16 Cliff, N. Y	Gilbert & Bennett Mig. Co., 273 Fearl, N. Y
Randali & Jones, 10 Oliver, Boston, Mass28 teel Manufacturers.	Harrison Wire Co., St. Louis, Mo
Albany & Rensselher from & Steel Co., Troy, N. Y., 28 Atha, Benjamin & Co., 241 Pearl, N. Y.,	ller Wm. F., Troy, N. Y
Gautier Steel Co. Ld. Johnstown Pa	Hammond W. S., Lewisberry, Pa. Wire, Manufacturers of, Cary & Moen, 24 W, 26th, N. Y. Cleveland Rolling Mill Co., Cleveland, Ohio. 28 Gautier steel Co., Ld., Johnstown, Pa. 28, 28 Gilbert & Bennett Mig. Co., 27 Pearl, N. Y. 7 Griswold J. Wool, Troy, N. Y. Haigh J. Lloyd, 81 John, N. Y. 2 Harrison Wire Co., St., Louis, Mo. 2 Howard & Morse, 45 Fulton, N. Y. 2 Prentiss Geo. W. & Co., Holyoke, Mass. 2 Trenton aron Co., Trenton, N. J. 2 Washburn & Moen Mig. Co., Worcester, Mass. 2 Washburn & Moen Mig. Co., Worcester, Mass. 2
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teel Manufactaterer. Albany & Rensselaer Iron & Steel Co., Troy, N. Y., 28 Atha, Benjamin & Co., 211 Pearl, N. Y. Cleveland Rolling Mill Co., Cleveland. O., 28 Forest City Steel Co., L. (Johnstown, Pa., 28 Gautier Steel Co., Ld., Johnstown, Pa., 28 Midvale Steel Works, Nicetown, Phila., Pa., 28 Midvale Steel Works, Nicetown, Phila., Pa., 28 Midvale Steel Works, Nicetown, Phila., Pa., 28 Pennsylvania Steel Co., 28 Rowland Wm. & Harvey, Frankford, Phila., 36 Sanderson Geo. & Co., 36 Sold, N. Y., 28 Singter, Nimick & Co., Pittsburgh, Pa., 28 Singter, Nimick & Co., Pittsburgh, Pa., 28 Singter, Nimick & Co., Pittsburgh, Pa., 28 Standard Steel Works, Philadelphia, Pa., 10 Standard Steel Works, Philadelphia, Pa., 10 Standard Steel Works, Philadelphia, Pa., 28 The Edgar Thomson Steel Co., 55 Broadway, N. Y., 29 Wardlow S. & C., Sheffield, England., 28 teeline., 28	Oliver E., 106 and 108 Beekman st., N. Y. Wire Naila, American Wire Nail Co., Covington, Ky., 20 Bulland, Hobart & Whidden 19 Warren, N. Y., 27 Bulland, E. Sons, Taunton, Mass., 30 HP. Nail Co., Cleveland, Ohio., 24 Wire Rope, Iron and Sirel, Makers of, Broderick & Bascom, St. Louis, Mo., 2 Haigh J. Loyd, 61 John, N. Y., 3 Hadard Mfg, Co., Wilkesbarre, Pa., 2 Roebling's John A. Sons, Trenton, N. J. Wrenches, Manufacturers of, Bemis & Call Hdw, & Tool Co., Springfield, Mass, 24875 Coes A. G. & Co., Worcester, Mass., 21 Girard Wrench Mfg, Co., Glrard, Pa., 6 Van Wagoner & Williams, 62 Beekman, N. Y., 30 Wood Working Machinery, Forsaith, S. C. & Co., Manchester, N. 41 Wingers, 1
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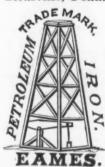
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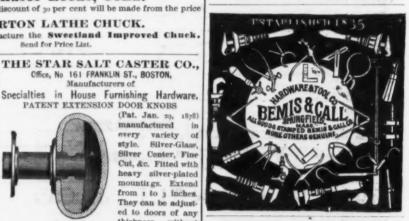


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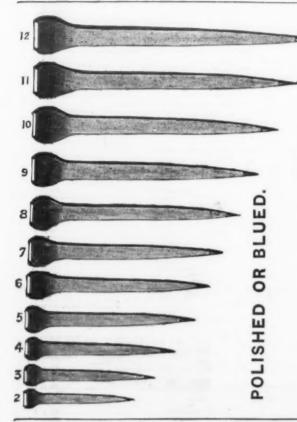
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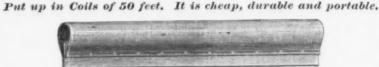


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4	" Buck Bros (Shank). 500 fo & Clamps, ron, Frovidence Tool Co.'s, Wrt. Iron dis seg. " Adjustable, Gray's. dis 20 g " Lambert's. dis 20 g " Snow's. dis 20 g " Hammer's. dis 20 g " Cabinet, Sargent's. dis 60 g " Carriage Makers, Sargent's. dis 60 g " Cord and Tape (f. & S. Mig. Co.), dis 20 g Clips. Axie.	N
	Stearns	Di
- GZ2	Uperior	Ti
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BISA	Corre Mills. card and Box	F Ci H.
T	te and Beer	W Ki
CCDB	er doz \$1.00.	To
O	Compasses & Calipers. dis 454 "Wing & Inside or Outside.dis 204.75 "Double. dis 60 5 "Call's Pat. Inside. dis 35420 5 Ook's	Ro Br Ja
Ë	xeelsior dis 50 %	Ba W Su
W	Coopers' Tools. dls 16 20 2 Corkscrews.—Humason & B. dls 40 5 Cork Screws.—Humason & B. dls 40 5 Corn Knives and Cutters.—Eradley's. dls 10 5 adsworth's. dls 234 5 Crow Bars. LYOW Bars. at Steel. \$75.0	Flui Sa Ha
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U	rosaic i ricos,	
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25	Drill Chucks.—Morse's Beach Patent dis s Adjusteach 21.0c. dis s Danbury	10
25 35 25	Danbury	ne S
20 25 25	Elevator Buckets, 134 to 10 in. (Duc's Improv.	80
25 5 60 5	Mill E. Buckets, heavy, 5 to 10 inc. (Duc's Improve of 100 inc.) Mill E. Buckets, heavy, 5 to 10 inches (Duc's Improve of dos \$6.00 \$6.00.) Storehouse, (Duc's Patent) 12 to 17, \$12.00 \$80.00.	96
10 5	Storehouse, (Duc's Patent) 12 to 17, \$12.0 @ \$10.00. 1 Emery and Emery Paper. Genuine Chester-Regular Nos	6 9
10 9	" in 10-lb. cans	18 6
10 9 70 9 10 9	Wellington Mills, Grain. W in loc i Flour. W in Scr Hampden Emery Grain. Ser	10
IO 9	B. & A. Emery Paper	5 5
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5 % 5 %	Walter Spencer & Co.'s "Diamond "	至 皇 皇
**	H. Disston & Sons (new list)	N XX M
**	Walter Spencer & Co. 8 "Jamonta 4.75 to Moss & Gambie. 4.75 to Gambie. 4.7	×
*	Peerless, 4-inch Rolls 4.00 each ne	100
5 %	Eureka, No. 1, 7-inch Roll	2 7 2
	Crown. 4½-in. \$3.40; 6-in. \$4.00; 8-in. \$6.50 each dis 10 Star	XXX
18	Crown Jewel 0 ii., 93.40 cacm, on to Domestic Fluter 1.40 cacn no Geneva Hand Fluter No. 1 1.50 cacn no Geneva Hand Fluter No. 1, 151.500 ; 2, 51.500 ; 3, 51.500 4 doz 4 doz 6 doz	t
et et	% dos	6 6
nt K	Clark's Hand Fluter. # dos #15.00, dis 20 Combined Fluter and Sad Iron. # dos 15.00, dis 30 Buffalo. # dos 10.00, dis 10	
* 15 K	Forks. Hay, Manure and Sp./ling new list, dis 15	
A M M M	Forks. Hay, Manure and Sp. ding. new list, dis 15 Pinted A I, Rogers & 870 dis 40855 "Reed & Barton. dis 40855 Fruit and Jelly Presses. Enterprise Mig. Co. dis 205 Fry Panse.	6
AMMA	Fry Fass. Surface as follows	
244	W dos\$3.00 \$3.75 4.25 4.75 5.25 5.00 7.00 8.00 0.00 Acme Patent, same list as above	200
2	Gauges. dis colto sur Chaplu's. dis colto sur Chaplu's. dis colto sur Smith's Patent. P dos \$16.00, dis 40.5	
MMK	" Smith's Patent	
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ŝ	Gimiets. Nail and Spike. "Bee "Gimiets. "Bee "Gimiets. "Eureka Gimiets. "Diamond Gimiets. Double Cut Shepardson's. "Bartwell's. "Ites". "Ites". "Ites". "Ites". "Ites". "Ites of the partson	
N to	Glue Pots. Tipned and Engmeled dis 40 %	1
X X	Glue Pota. dis 40 % Tinned and Enameled dis 40 % Family, Howe's "Eureka" dis 40 % L. F. & C.'s "Handy dis 55 % Grindstone Fixtures.	1
8	Reading Hardware Co	-
t X	Ammers. Maydole's, New List of Dec. 10th, 1876. dis 10. 5	
A L	H. Hammonds	l
8	Warner & Noble's	-
	Hand Cuffs and Leg Irons. Providence Tool Co.'s Hand Cuffs, \$15.00 \(\psi \) dox \(\) dis 10 \(\) Tower's dis 25 \(\)	
	Tower's	1
	Bronzed from Drop Latches	
	Barn Doorper dos \$5.00, dis 70 \$ Wrought Chestdis 70 \$ Surface Chest. Eargent's listdis 60210 \$	1
	Flush Chest. dis tokio 5 difting. dis 54210 % isw and Plane dis 40210 \$	
	hammer and Hatchet brad Awl. • gross \$2.00, dis 25&10 \$ Hickory Firmer Chisel, assorted, \$2008 \$4.00	l
	Tush Chest dis Cokto S. ditting. dis 5,62; re saw and Plane dis 5,62; re flammer and Hatchet. # gross \$00, dis 2,62; s flackory Firmer Chisel, assorted, \$ gross \$00, dis 2,62; s large, 15,00 ppple " assorted, \$ gross \$00 ookket " large, 6,00 ookket " large, 6,00 ookket " sasorted, 5,00 ookket " sasorted, 5,00 dis 7,00 dis 7,00 dis 7,00 can dis 7,00 can dis 7,00 can dis 7,00 can dis 7,00 d	
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0	M. Jones & Co	A
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C	Broad, Nos. 1234 4 dos 6.00 10.00 12.00 14.00 10.00	C
	Shingling, Nos. 1 2 3	BLV
Vi	Lightning"	TO H
Q	#inges, atc, Western \$\psi\$ dox \$6.25, dis 70 \$\psi\$ N.E. \$\psi\$ dox \$10.13, dis 70 \$\psi\$ N.E. Reversible. \$\psi\$ dox \$10.13, dis 70 \$\psi\$ R.E. Glark* N.O. 1. \$\psi\$ dox \$0.05 \$\psi\$. N.Y. \$\psi_{0.0}\$ a.0 \$\psi_{0.0}\$ dox \$0.05 \$\psi_{0.0}\$ Automatic. \$\psi\$ dox \$2.0 dis 40 \$\psi\$ Automatic. \$\psi\$ dox \$2.0 dis 40 \$\psi\$	HV
G	nte, Clark's No. 1 # dos \$6.00. dis todio 5 N. Y. State. \$ dos \$6.10. dis 70dio 5 Automatic. # dos \$6.20. dis 20dio 5	TI

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十九九九九二	Rolled Bilnd Hinges	Ollers. Brass and Olmsted's Broughto Malicable
KKKKK	Rolled Raised. dis fock Wrought Strap and 1, list Dec. 20, 77 dis 40k Wrought Strap and 2, list Dec. 20, 77 dis 40k Providence 15 over 12 in. \$6.50 \$\pi\$ 100 \$\pi\$ dis Screw Hook and \$\pi\$, \$10, \$12 in., \$6.50 \$\pi\$ 100 \$\pi\$ dis Strap \(\frac{1}{2} \) \(\frac	Prior's Pa
	Screw Hook and Eye \begin{cases} \frac{76}{94} & 1 & \text{in.}, & \text{10c} \\ \frac{4}{94} & \text{in.}, & \text{12c} \\ \frac{10}{94} & \text{in.}, & \text{10c} \end{cases} \rightarrow \text{dis} \\ \frac{10}{94} & \text{in.}, & \text{10c} \end{cases} \rightarrow \text{dis} \end{cases}	Dixon's L
6)	Hees.—Solid Shank, C. S # dos #5.25, dis Socket # dos 5.75, dis	Packin N. Y. Belti Picture
100		
3	Planters'dls 30 % Scovill Patterndls 24 % Scovill Pattern Handleddls 24 % Scovill Pattern Handleddls 26 % Hick's Pat. Solid C. S. Planters'dls 20 % Scovill Patterndls 20 % Winsted & Lane, Plantersdls 20 % Scovill Patterndls 20 % Hack's	Porcelain Pinking Pinking Ragic Astor Plai
-	Hooks. Bird Cage, Sargent's list	Crown Pla
-	Cotton, Patented (N. Y. Mallet & Handle Wks), dis Cotton (Humason & Beckley Mfg. Co.). dis dis 30 dis 10 dis 10 dis 20 di	Planes Bencn, Fir Seco Moulding. Bailey's (St The Stanle Bailey's "V
	" Weston's, No. 1, \$10.00; No. 2, \$9.00 \(\) dez dis 2 " McGill's, \$2.00 \(\) dos	Bailey's "V Defiance A Plane Iron
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	Reading dis 40&F	Pliers n Button's P
	"Staples, Stanley's list	Button's Page Hall's Pate Humason &
	Whiffletree—Fatent dis 4 Hooks and Eyes—Malleable Iron. dis 5-8th Frans. dis 5-8th Frans. dis 5-8th Am. Double Acting, \$7 each. dis 30 @ 4	Russell's P
-	Nos. 5 5 7 8 9 10 Ausable	Plumba
	A C 60 50 40 26 24 22 21 20 10 18 18 18 18 2	Disston's Stanley R. o Chapin's Pr
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1	North Western Fin'h'd 26 23 21 20 19 180 in Mational, Pointed and Polished, Pat. Fin. 25 23 21 20 19 180 in National, Pointed and Polished, Pat. Fin. 25 23 21 20 19 180 in Hammer, Pt'd Vulcan Pt'd & Blued. 26 23 21 20 19 180 in Hammer, Pt'd Studen. 26 23 21 20 19 180 in Hammer, Pt'd Wulcan Pt'd & Blued. 26 23 21 20 19 180 in Hammer, Pt'd Wulcan Pt'd & Blued. 26 23 21 20 19 180 in Hammer, Pt'd & Blued. 26 23 21 20 19 180 in Hammer, Pt'd & Blued. 26 21 21 20 19 180 in Hammer, Pt'd & Blued. 26 21 21 20 19 180 in Hammer. 26 23 21 20 19 180 in H	Pruning Disston's Co
1	Medium and Heavy # keg 4:12 Mille Shoes # keg 5:12 Perkins Show	Pruning She
and a second	Navelty loe Breakers	Hot House a Jap'd Screw Brass Screw
1	Wood Head Picks, Sargent's 7 doz 2.8; discoctocto fron 4 doz 1.8; discoctocto ice Mallets Pick in Head	Jap'd Screw Brass Screw Jap'd Side Clothe Hay Fork Sc
THE C	Iron ce Mallets Pick in Head	t Tag Shade Rack.
1	Brass, 7 to 13 inches inclusive # B 340 ne Brass, larger than 13 inches # b 400 ne	Bemis & Cal
A	Knives. Ames' Butcher Knives	Spring Leach Bemis & Cal
BEI	Halves dis social states of the social states of th	Bemis & Cal Solid. Tinner Rait.
CBB	Knobs. arriage (Jap'd 80c. \$\Pi\$ gross)	Rakes.
F	"Plated Same discounts as Door Locks "Por Plain	Malleable
PH	Por.	Razor St. Genuine Em Badger's Em Badger's (no
	Melting—Sargent's dis sokto	Hunt's Chapman
T	Lanterns. With Guards, 34e extra. net	fivets. iron and Tin in bulk
HPBA	Curricane	in bulk Copper River Nos. 7 W B. 490 Tinned Iron 1
YDPC	ankee	Rivet Set Rods. Stair
PER	Lemon Squeezers. orceiain Lined	Stair
Sar	ammis	Noveity Acme (Anti-F Hope. Manila
M.	ankee. dis 10810 5 e Beque. dis 10810 5 olice, Small, \$7,00 Med., \$5,00 Large, \$1,200 discossion onvex Reflector. Lemen Squeczers. discossion discossion of the control of the con	Tar'd
ú	otton Chaik. Lake Chaik. Nos. 0, 1, 2, 3, 80.00, 80.50, 87.00 \$7.00	Sisal
Ti Li	Barnes & Deits dis 30 % runk dis 25 % angstroth & Crane's List Jan. 1, '77.	Ruier. Chapin's Standard Staniey
Bu	No. 5½ to 13	Stephens Sad Irons. From 4 to Self Heating.
Pl	Shepardson" or "U. S." dis 35 % Felter" or "American" dis 335 % late dis 335 % s.d. 2 %	Gleason's Shie Enterprise Pa Mrs. Pott's Pa Combined Flu
Brig	DOOR LOCKS, AC. anford	Combined Flu Sand Pape Baeder & Ada
P.	prwich dis 378.7 2 & F. Corbin	64 6 65 0
TO O	eading Hardware Codis entondis ontinentai	New England, Gage's Sash Cord. Common
	mitinental dio vals 7	Patent
	Yale Lock MIL. Co. 8 "Standard" dis 40 5	Raw Hide Steel Ribbon Sash Lock Clark's, No. 1,
V.	Meat Cutters, xon's (P. S. & W.) Nos. 1 2 3 4	Walker's
11	Ment Cutters, Nos. 1 2 3 4 4 4 2 4 4 2 7 4 8 7 8 7 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9	Northup Wind The Periect, C
V (00drum's (P. & & W.)Nrs. 100 140	Sash Weig Sausage Si Miles. Perry. Fraw Cut No.
er	aw CutNos. 5 2 5 5.60dis 40.82.820 :	Enterprise Mf
1.55	Nos 1 2 3 4 B 5	Disston's Circu Mill
BRR	### ##################################	Boynton's Ligi One-
male	nith'sper doz \$1.75, dis 10 5 Nolasses Catos. Pattera	Wheeler & Cle
h	" Tinned Ends	Per doz810
The V	acom s Genuine	Saw Rods
01	### ### ### ### ### ### ### ### ### ##	Common Level
a.l	ble (Humason & Beckley Mfg. Co.) dis g ke's Pattern. & dos \$2,00, dis reference & Seymour Mfg. Co	Hammer, Hote
ø	- n francis	Bemis & Call C
)	akum. W b 10 c Bost. W b 20 c 8. Mavy W b 84 c W b 7560	Aiken's Genuir Imitat

0	J.	
dt rodt is 60dt	Oliers.—Zinc and Tin	
s 44dt dis	10 % Olmsted's dis 45&10 % 10 % Broughton's. dis 50 % 10 % Malieable (Hammer's) @ doz \$0.00, dis 10 % Prior's Pateut or 'Paragon," Zinc dis 50&10 %	
dis	0.5 Pass	
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dis dis dis dis dis 30 @		
.dls 10 @ ks @	Porcelain Head. T. & S. Mfg. Co	
s 60de	Crown Platting Machinesdis 25 % 6in., \$0.00. ioin., \$10.00.each Planes and Plane Props.	
dis 3 dis 4 30&1 dis 1	Second dis 45 % cash in 10 days. Moulding dis 36210 % Balley's (Stanley R. & L. Co.) new list Jan. '79.dis 36210 % The Stanley R. & L. Co.) "dis 26210 %	
dis 1 dis 2 60&1	2 Bailey's "Victor". dis 25&to 5 Defiance Adjustable, new list. dis 25&to 5 Plane irons, Butcher's	
40821 40821 40821	Audula 1001 Co. Glis 25 %	
018 20 018 40 00&10 00&10	"Sandusky Tool Codis 20&10 % Pliers and Nippers. Button's Patent	
40@40 dia 40 65&10 66&10	S Humason & Beckley Mrg. Co. dis 32½ % Gas Pliers dis 5 % Eureka Pliers and Nippers dis 5 % dis 25 %	
0 (40	5 " End Cutting Nippers dis 25 % Tinners' Cutting Nippers dis 25 % Plumbs and Levels.	
30 30 de 30	Flumbs and Levels. dis 70 %	
2 § 15 10 180	% Standard Rule Co.'s New Adjustable	
80 10 18 d	Compan Boot Hole Dismon mondon has an dismon	
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83.62	Pruning Hooks and Shears.	
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lis 20 lis 20 lis 40 c&10	g Hot House and Tackie. dis ookto \$ g Jap'd Screw. dis ookto \$ g Irass Screw. dis sokto \$	
75 ne	Hay Fork Solid Eye, \$4.50; Swivel, \$5.00, dis locatos to "Anti-Friction"	
20 ne 25 ne 08 10 ;	Shade Rack	
oc ne octio is so is is;	s 'Leach's Patent	
is ao 33% utler	Barn Oper 14 54 and 14 lich W foot oc. dis 70 %	
04:10 (p4:10) 954:5 (Rakes Gor N. E. Hangers dis 70kto 5	
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odk zo 9 iodka 5 ls ao 9	Huot's dis 40% 5 % Chapman dis 15 @ 20 % Resunder's dis 15 @ 20 % Torrey's dis 25 %	
net a 25 %		
\$10 % \$10 % \$10 % \$10 %	Reds. New list March v '20 dia 2016 st	
o net	American Patent dis 40 % Rollers Sarn Door, Sargent's list dis 50 %	
8 55 % 8355 % & 10 % 8 55 %	Acne (Anti-Friction). dis 46 % Kope. Manufacturers' Net List July 2, 1579, ***Entitle	
&10 % &10 % C net	Tar'd Rope	
00000 9. 5462 % 1 30 %	Hay Rope Sand stolers White C Hay Rope Boxwood Ivory.	
8 25 % R 10 % R 10 %	Standard	
8 30 % 8 40 % 8 35 % 133 %	September 1988 1988 1988 1988 1988 1988 1988 198	
net dt2 % dt2 %	Mrs. Pott's Pat. Cold Handle, "Crown"dis 25 % Combined Fluter and Sad Iron. per dos \$15.00, dis 15 % Sand Paper. Baeder & Adamson's Flint, 00 to 1½\$4.25 % ream]	
#2 % #2 % #2 ^	Combined Fluter and Sad Iron. per dos \$1.00, dis 16 \$ Sand Paper. Baeder & Adamson's Flint, ot to 1½. \$4.25 \$\tilde{\pi}\$ ream dis 2. 3½ \$2.3 \$4.25 \$\tilde{\pi}\$ ream 2.65 \$ Bassorted \$4.25 \$\tilde{\pi}\$ ream 2.65 \$ Bassorted \$4.25 \$\tilde{\pi}\$ ream 2.65 \$ Bassorted \$4.25 \$\tilde{\pi}\$ ream 2.65 \$ New England, same list as b. & A. Flint. dis \$2.62 \$5 Sash Cores.	
236 %	Gaze's	
40 % 40 % 60 %	Sash Core. Common.	
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Bash Locks. Clark's, No. 1, \$10.00; No. 2, \$8.00 per gross. dis 50%	
25 % 30 %	Steel Ribbon. dia 10 % Steel Ribbon. dia 10 % Starbh Locks. dia 50 % Ferruscoit No. 1, \$10.00; No. 2, \$3.00 per gross. dis 50 % Ferruscoit No. 1, \$10.00; No. 2, \$3.00 per gross. dis 10 % Walker's. dis 20 % Sammond's Window Springs. \$0.00 per gross, dis 10 % Ferruscoit No. 1, \$10.00 per gross, dis 10 % Ferruscoit No. 1, \$10.00 per gross, dis 10 % Ferruscoit No. 1, \$10.00 per gross, dis 10 % Ferruscoit No. 1, \$10.00 per gross, dis 10 % Ferruscoit No. 1, \$10.00 per gross, dis 10 % No. 1, \$10.	
&10	Sash Weights.—Solid Eves V B 1546 1560 Sunsage Stuffers or Fillers V doz 820, dis 30 S Perry	
20 1	Wiles W doz 820, dis 30 5	
25,5	" Mill	
10 %	Disston's Circular	
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30 % 20 % 10 % 14 % POP4	Enw France. Enw France. Converted to the state of the s	
list list list	Saw Rots	
10 ¢ 50 \$	Bemis & Call Co.'s Lever & Spring Hammer.dis 35&10 \$	
to e	Aiken's Genuine	

October 9, 1675.	
Hart's Patent Leverdis 20 % Disston'sdis 20 %	Well Wheels.—Revised listdis 60&10 Wire.
Boales. Hatch, Counter, No. 171	Bright and Annealed Nos. o@ 18. disco @ 52%
Union Platform	Coppered
Chatilion's Grocers dis 25 % Eureka dis 25 % Family Universal dis 40 %	Tinned, Nos. o to 18
Disston's	Weil Wheels.
North Nort	Nos. io and 11
Box, I Handle	"Staples, Galvanised
Foot per doz \$5.00 net (Providence Tool Co	Galvanized "R B 1245 Steel Music Wire, Nos. 12 to 27 R B \$1.00. In Turner & Seymour Mfg. Co., Picture Wire,
MCLGAA INLIACIUS	dis 80&20&10 Judd's Picture Wiredis 80&20&10 Clothes Line Wire, Galvanized # coli 30 % 400 no
Douglass Mfg. Co	Green Wire Cloth, per sq. foot, 3c @ 3¼cne Wrenches. American Adjustable
Sargent & Co.'s	Baxter's Adjustable "S,"
Tat H'd Iron dis 45 % Fat Head Brass dis 45 %	Coes Genuine dis oc "Mechanics" dis 60&110 "Pattern, Malieable dis 75&10
Round Head Brass	Girard Standard. dis coario Girard Agl
Sargent & Co.'s	Bemis & Cail's Patent Combination
Machine, Flat Head, Iron, Am. Screw Co	Van Wagoner & Williams' Basin
Wood, Reech dis 20210 % dis 20210 % Hekory dis 20210 % dis 20210 % dis 20210 % dis 20210 %	Webster's Pat. Combination
" Humason, Beckley & Cos (low list) dis 40&10 % dis 40&10 % dis 35 %	No. 1, " 54' No. 2 %, with Cogs
Screw Window Balances. 8. H. Hugunin's, Single gro., \$23.94; 5 gro. \$22.68, dis 5 %	" No. 3. " 71. " 71. " 19. " 1
ast Steel	NO. 1. 54. Universal, XX No. 2½. 50. 50. 63.
Scissorssee Pruning Hooks and Shears Serpard's Lamp Trimmers	" No. 1 71. " No. 8
fack (Wilson's). Screw Window Hainuces. S.H. Hugunin's Single gro, \$23,94; 5 gro. \$22.68, dis 5,5 Shears and Scissors. "Iron (American). "Iron (American). "Scissors. "Scissors. dis 6,5 "Youning. Scissors. See Pruning Hooks and Shears. Jarnard's Lamp Trimmers. "Idia 20,5 Heinisch Trimmers and Scissors. dis 6,6 dis 12,0 dis 12,0 dis 20,5 dis 13,0 dis 20,5 dis 20,5	" No. 12 20. " No. 18 " 26. " No. 22. " 33.
liding Door, M. W. & Co., list	Judd's Picture Wire. Glothes Line Wire, Galvanized. \$\ \text{Pci}\$ coin of a second Green Wire Cloth, per sq. foot, \$\text{2}\$ \(\text{3} \) \$\ \text{4} \) \$\ \text{6} \] \$\ \text{6} \
Hatfield'sdis to&to&to&2 % Russell's Anti-Frictiondis fo&to&2 % Moore's Anti-Frictiondis 4 %	Eureka, No. 1
Hiding Shutter, R. & E. list	Excelsior, No. A, with Folding Bench
Philadelphia Hanging	No. 2, Iron 60 Common Gear 60.
Iussey, Binns & Co., Patent	Stamped Tinware.—New List Dec. 1, 1878. Common Stamped Ware
temington's (Lowman's Patent)dis 30 % Junning's Shovels and Scoopsdis 30&7% % 5. kowland's "Regular,"	METALS.
Patent	TROX -Dury Bar - to the B by Sheet Bar
	IRON.—Duty: Bars, I to 1/4c. # D: Sheet, Ban Hoop and Scroll, 1/4 to 1/4c. # D: provided, that not of the above Iron shall pay a less rate of duty than per cent. Pig. 87 # ton; Pollahed Sheet, 3c. # 1 Wrought Scrap, 8 # ton: Cast Scrap, 80 per to Railroad 7cc. # 1co Bs. Boller and Plate, 1/4c. # D.
quare Frames, Round Cornered, by Case	Wrought Scrap, #3 # ton: Cast Scrap, #5 per to
Denance Metallic	Railroad 70c. \$\Pi\$ 100 \$\Pi\$ at Pi\$ at Pi\$ 4 Feb \$\Pi\$ 5 Feb \$\Pi\$ 6 Feb \$\Pi
Wood	Eglinton
Sipoke Trinimers. # doz \$10.00, dla 40k10 % onney"s. # doz \$10.00, dla 40k10 % etaari"s. # doz \$10.00, dla 40k10 % teari"s. # doz \$10.00, dla 50k10 % over % on \$10.00 % doz \$40.00 kla 50k10 % obuginas" % doz \$40.00 kla 50k10 %	Giengarnock
Spoons. dis 40% 5 %	Rails
	Wrought Scrap, from vard. # ton. nom. 35.00 @ 38.0
	Gar Iron. from Store.
lolmes, Booth & Haydens	Refined Iron: % to 2 in. round and square
blamond Steet (L. Boardman's Sons)	I to 6 in.x 34 and 5-16.
Douglass	1 to 6 in. x 36 to 1 in. \$\frac{1}{2} \text{ in c 6 in. x 36 to 1 in.} \] Refined Iron: \$\frac{4}{2} \text{ to 2 in. round and square.} \$\frac{3}{2} \text{ in 5 c in. x 36 to 1 in.} \] 1 to 6 in. x 36 and 5 in. \$\frac{3}{2} \text{ in 5.} \] 1 to 6 in. x 36 and 5 in. \$\frac{3}{2} \text{ in 5.} \] Rods = \frac{3}{2} \text{ and first round and square.} \$\frac{3}{2} \text{ in 5.} \] Rods = \frac{3}{2} \text{ and first round and square.} \$\frac{3}{2} \text{ in 5.} \] Sheet Iron. Common American American American American American Sci. \$\frac{3}{2} \text{ in 5.} \text{ in 5.} \text{ in 5.} \] Nos. 10 to 20. \$\frac{3}{2} \text{ in 5.} \text{ in 5.} c c c c c c c c c c c c c c c c c c c
**Clightning ** Screw Pintedis. 10 % Stone. Stone. ** 5 6c / dis. 20 %	Nos. 10 to 20
" Ax Stone # B 8c Clis 331/4 " Slips # B 100	27# 15 5340 6 634 27# 25 5340 634
Vasnita Stone	11 to 24,
wasnita stone (Boyd & Chase) No. 1 # B 14c net furkey Oil Stone (Boyd & Chase)4 to 8in, \$1.00 # B, dis 10 %	Patent Planished
None	American Cold Rolled
Steve Pelish. oseph Dixon's	which Copper is a component of chief value), 45 % a valorem. American Ingot
Stave Polish	which Copper is a component of chief value), 45 % a valorem. American Ingot. *** B See Trade Repor SHATHINO, BRAZHERS' COPPER, BOLTS, ACRES, COPER, BOLTS, W. B. See Trade Repor SHATHINO, BRAZHERS' COPPER, BOLTS, W. B. S. SEE ST. S.
lising Sun# gross \$5.75, net blxon's Plumbago# b &c. net	Brasiers Copper, ordinary sizes, 15 os. and over 12 os., \$\psi\$ sq. ft
Squares dis to \$; full cases, dis 50%10 \$\frac{3}{2} \frac{5}{5} cases, dis 50\% 10\% 10\% 10\% 10\% 10\% 10\% 10\% 1	Circles less than 84 in. I diameter
ry Squares and T Heveis	Losomotive Fire Box Sheets. # 3 25 Sheathing Copper, over 12 os. # sq. ft. # 3 2
Vinterbottom's Try and Mitredis 25,210 %	Copper Bottoms. # 20 20 No Copper is Sheathing except 14x48 inches and no
wedes Iron Tanks, all kinds	to exceed 34 os. to the sq. ft. TENNING. 14748, by the case
	For tinning both sides, double the above amount o'neill's patent planished copper.—Net.
Tap Borers.	O'NELL'S PATEST FLAMBISED COPPER.—Not. 14 and 16 oz. and heavier. D s sc By the case. F s st 20 s. and lighter B sic Sizes. 7 in., 1433.9 lin., 1435.0 in., 1435.0 in., 1435.0 id., 1435.0 id.
Tap Borers. dis sekto 5 ves Tap Burers. dis 10kto 5 http://disable.com/disable	7 in., 14x52. # in., 14x56. 9 in., 14x60. 14 and 16 oz. and heavier. # \$ 30. By the case. # \$ 3 (And all sizes not over 20 in. wide.)
merican	14 and 16 oz. and heavier
In Case	(And all sizes not over 20 in. wide.) 30X90. 14 and 16 oz. and heavier
Tebacce Nutters,	BEASS MANUFACTURERS' PRICE LIST.—dis nominal. July 1, 1878. Cash prices for Roll and Sheet Brass. For less qua
Sanua Lock C.	tity than 100 bs. add 30 @ b. HERH BRASS. All Nos. not thinner than to No. 28, wider than 2 in.,
ools (P. 8, & W.)	all Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive.
Traps. ame, Newhouse	All Nos. not thinner than to No. 28, wider than 2 in., not wider than 14 in. than to No. 28, wider than 2 in., all Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive. All Nos. to No. 28, inclusive, and widths over 20 to 30 in., inclusive. The control of the
Cage 4 0 0 82.50, dis 10 5	All Brass thinner than No. 38 is Platers' Brass, at4 sheets 24x48, and all sheets cut to particular sizes
Cases our marter	Printers' Rules.
Trowels.	40 in. and over
Trowels.	Circular Sheets, in diam. from 4 in. to 14, inclusive 3
Troweis.	Circular Sheets, in diam. From 4 in. to 14, inclusive 3 of 5 of
Trowels. othross Brick and Plastering	4c 4 m more than high Brass,
Trowels.	4c # 5 more than high Brass, Gilding Metal, &c # 5 more than High Brass, In Bars
Trowels.	4c v b more than high irrass, Gilding Metal, & v b more than High Brass, (In Bars
Trewels.	4c v b more than high irrass, Gilding Metal, & v b more than High Brass. (In Mars
Trewels.	4c v b more than high irrass, Gilding Metal, & v b more than High Brass. (In Mars
Trowels.	4c \(\psi \) more than high irrass, Gilding Metal, \(\cap \psi \) more than High Brass, Gilding Metal, \(\cap \cap \) is more than High Brass. Platers' or Gold Metal (1 hars) Platers' or Gold Metal (1 hars) Platers or Folished (4 for State of State
Trewels. dis 20 detroise Brick and Plastering. dis 20 deed's Brick and Plastering. dis 21 deed's Brick and Plastering. dis 25 dis	4c \(\psi \) more than high israss, Gilding Metal, \(\psi \) \(\psi \) more than High Brass, Gilding Metal, \(\psi \) \(\psi \) more than High Brass, \(\psi \)
Trewels. dis 20 detroise Brick and Plastering. dis 20 deed's Brick and Plastering. dis 21 deed's Brick and Plastering. dis 25 dis	4c v b more than high brass, Gilding Metal, & v b more than High Brass, Gilding Metal, & v b more than High Brass, A large of the more than High Brass, and the same of the sa
Trewels. dis 20 5	4c # B more than high Brass, Gilding Metal, & W B more than High Brass, Gilding Metal, & W B more than High Brass, (In Bars
Trewels. dis 20 5	4c v b more than high israis. Gilding Metal, & v b more than High Brass. In Bars. Sawed
Trewels. dis 20 5	4c # B more than High Brass, Gilding Metal, & # B more than High Brass, Gilding Metal, & # B more than High Brass, A Sawed

	THE IRON AG
ell Wheels.—Revised listdis 60&10 %	BRASS AND COPPER WIRE, Gild'g and
### Wheels.—Revised list	High Brass, Low Brass, Coppet No. 40 20
Nos. 27 @ 30.018 634 @ 65 % Nos. 27 @ 30.018 634 @ 65 % ppered	NO. 20 30 \$0.20 \$0.32 \$0.31 \$0.32 \$0.31 \$0.32 \$0
"Nos. o to 18market list, dis 37% @ 40 % nned, Nos. o to 18market list, dis 37% @ 40 %	No.26
8t Steel. dis 25 @ 30 2 nned Broom Wire, Nos. 18 to 25. dis 57% @ 50 8 nnealed Fence, 2 0s. 8 and 9. dis 50 @ 52% \$	No.36.
" Grape, Nos. 10 to 14	NO.31
No. 13	Spring Wire 2c # B advance. Flat, Square and Haif Round Wire 5c # B advance
rbs Steel Wire	on Round Wire. Fancy Wire not less than for \$\mathbb{P}\$ advance of Round Wire.
pel Music Wire, Nos. 12 to 27	Brass Rods, No. 8 and larger not less than 2 fee lengths, 33c. Wire straightened and cut, smaller than No. 8 and
dd's Picture Wiredis 80&20&10 \$ othes Line Wire, Galvanizeq # coil 30 @ 400 net	beiggs, vo. and larger not less than 2 fee levels, s.g.c. which seed and cut, smaller than No. 8, an not less than 2 feet lengths, sgc. Wire and Rods less than 2 feet lengths, special rater Twelve cents per B extra for spooling on 1 B spool
een wire Cloth, per sq. foot, 3c @ 34c	Miscellaneous,
Xter's Adjustable "S," Gls 20 % Diagonal dis 20 % Gls 45 % dis 45 %	Common Plain Brass Pail Ears. \$6.3 Brass Door Rail. High Brass Scrap
es Genuine	Low 13
rard Standard	Terms—Net cash. Interest to be added after thirt days.
mis & Cail's Patent Combination	Plain to No. 20 inclusive above 34 in. to 3 in
" Cylinder or Gas Pipe	"above 3 in
ken Pocket (Bright)per dos \$8, dis 60 % ebster's Pat. Combinationdis 36 %	Number. Nos. 24, 25, 26, four cents advance on List for each Number. Above No. 25, special rates. Platn, 34 fach. 16 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19
Wringers. Per dos	All Mandrel Drawn Tubes a cents advance on Lies
No. 236, with Cogs. 00.00 No. 2, 63.00 No. 3, 71.00	Prices. Fancy Tubing to No. 20
" No. 4, " 93.00 11que, No. 0 51.00 11 54.00	to No. 20. Tubing Sawed or Cut 2 to 4 feet long, 2 cents advance on List.
11versai, XX No. 2/5	vance on List. Add to 2 cents 36 cent for each additional cutting under 2 feet.
" No. 1 93.00 " 93.00	All Mandrei Drawn Tubes under 36 in., 25 cents per pound advance. ZINC TUBING.—net.
" NO. 18. " 25.00 " 33.00	Plain
0 No. 2 54.00 63.00 63.00 69.00	Plain. Fancy. Scotch and Extra Patterns. 4 Per cent. 9
reks, No. 1	9 %
celsior, No. A, with Folding Bench	16 4 18 4
No. 2, Iron 60 Common Gear 54.00	STEEL.—DUTT: Bars, Ingots, Sheets and Coll valued at 7 cents \(\psi \), or under, 243 cents; over, cents, and not above 11, cents \(\psi \) by : over 11, 34 cents; over, cents, and not above 11, cents \(\psi \) by : over 11, 34 cents \(\psi \) and Railway Bars, it cents \(\psi \). For vided that Metal cemented, case or made from Iron by the Bessemer or pneumatic process, of whatever form of description, shall be classed as
Stamped Tinware.—New List Dec. 1, 1878. mmon Stamped Ware	ents, and not above 11, 3cents * * ; over 11, 3/5 cent * * , and 10 % ad val. Railway Bars, 1/5 cent * * Railway Bars, in part Steel, 1 cent * * . Provided
	that Metal cemented, cast or made from Iron by th Bessemer or pneumatic process, of whatever form o description, shall be classed as
METALS.	Tool
ON.—Duty: Bars, 1 to 134c. W B: Sheet, Band loop and Scroll, 134 to 134c. W B; provided, that none	Dollor Dista
f the above from shall pay a less rate of duty than 35- er cent. Pig. 男 單 ton; Polished Sheet, 3c. 單 動; Vrought Scrap, 48 單 ton: Cast Scrap, 48 更 per ton. tallroad 70c. 単 100 動s. Boller and Plate, 1½c. 單 動.	Machinery (round and square)9
tailroad 700. V 100 Bs. Boiler and Plate, 1/40. V B. g aron—American Nominal. Oundry No. 1 V ton \$30.00 @ 31.00 "No. 2 V ton 20.00 @ 30.00	Sheet
eray Forge 4 ≱ ton 27.00 (6 26.00	Best Cast W noted
glintonnominal, # ton 28.00 @ oltness # ton 31.00 @ Hengarnock # ton 29.00 @	"Extra Cast. # 1505 "Round Machinery, Cast. # 1505 "Swaged, Cast. # 1516 "Best Double Shear. # 1515 "Blister, ist quality. # 1516 German Steel, Best. # 1616
nrtsherrie	Best Double Shear. B 15½ Blister, 1st quality B 15½
teel	44 adonality 23 % co
rap. Vrought Scrap, from vard \$\P\$ ton. nom. 34.00 \(\mathcal{G} \) 38.00 Bar Iron, from Store.	" adquality 9 3 1446
mmon Iron: { to 2 in. round and square	LEAD.—DUTY Pig 82 # 100 Ds; old Lead, 1140 D w
fined Iron:	Bar
to 6 in. x½ to 1 in.	Sheet
rway Bars	BARDTTP NUMBAT
## American American, ## ## ## ## ## ## ## ## ## ## ## ## ##	N. P. U
25 to 20	B; Elecro-galvanised Plates, 20 # 8; Elecro-galvanised Plates, 20 # 8; Manufacture of, not enumerated, 35 per cent. ad. val. Bars, Block and Pigs free. Banca, subject to duty of 10 per cent Banca. # 8 25
30.	Straits
** 27	I C 10X14 Prime Charcoal
tent Planished	Charceal 9.50 @ 9.7
PPER.—DUTY: Pig. Bar and ingo t. to: DidCoper 4c B: Manufactured (including all article of hich Copper is a component of chief value), 45 % ad	D C 1236x17 9.75 @ 10.0 D X 1236x17 7.00 @ 7.2
norican Ingot	For each additional X add
	I C 10X14 2 \$7.00 6.75 6.40 @ 1 C 14X20 5 7.26 7.00 6.75 @
salers. Copper, ordinary sizes, over 10 s., \$\pi\$ 380 sq. ft	Prime Char. 2d quas. Coke.
cles 84 in. diameter and over	I C 14x30
athing Copper, over 12 os. F sq. ft 2 3 270	IX 20X28
t Copper. # 28c pper Bottoms. # 328c of Copper is Sheathing except 147.48 inches and not exceed 34 0s. to the sq. ft.	100 Bs.
48, by the case # sheet 60	American, cash
48, less than case	Lehigh, on spot. Q ZINC,—DUTT: Pig or Block, 1.50 \$\psi\$ 100 bs. Sheet 24(4 \$\psi\$. Sheet, Cask. 69.78
and 16 oz. and heavier > 5 zec By the case. # 5 sec oz. and lighter # 5 zec	** Open
Boller Sizes. 7 in., 14x52. # in., 14x50. o in., 14x50. and 16 oz. and heavier. # % 330 By the case. # % 320 (And all sizes not over 20 in. wide.)	Paper Stock, Old Metals, &c
(And all sizes not over 20 in. wide.) 30x800. and 16 oz. and heavier	Canvas linen. (Dealer's Selling Price.)
DE DESCRIPTION OF THE DESCRIPTION OF SHARP'S Gauge the Standard for Metal; Old English Gauge the Standard for Wire. BRASS MANUFACTURERS' PRICE LIST.—dis nominal.	White lines were No. 2. 2% 6
English Gauge the Standard for Wire. BRASS MANUFACTURERS' PRICE LIST.—dis nominal. July 1. 1828.	White lines rags, No. 1 4 66 28 66 24 66 23 26 24 25 26 23 26 24 26 24 25 26 23 26 24 26 24 26 24 26 24 26 24 24 24 24 24 24 24 24 26 24 26 24 26 24 26 24 26 24 26 26 24 26<
July 1, 1878. For less quan than 100 Bs. add 30 * B. HERH BRAIS.	Soft woolens 22 6 3 34 G Gunny bagging 334 G
Nos. not thinner than to No. 28, wider than 2 in., ot wider than 14 in250	
in., inclusive300	Rope cuttings
	Tarred shaking. 158 66 Hard White Shavings, No. 1. 356 66 Soft "No. 1 3 66
Brass thinner than No. 30 is Finters' 15-23s, at48e lets 24x48, and all sheets cut to particular sizes and lengths under 30 in., in width wider than 2 in.3sc	White Shavings, No. 2
nters' Rules	Book Stock No. 1. Heavy Stock 356 69
usive. Brass thinner than No. 38 is Platers' Brass, at. 48c ets 24x45, and all sheets cut to particular sizes and lengths under 30 in, in width wider than 10 in, 38c ets wider than 30 in, and under 40 in. 42c ets wider than 30 in, and under 40 in. 42c ets wider than 30 in, and over 40 in and over 40 in and over 40 in and over 40 in and 50 in an	** Light
164 40 in	Pure Manilas
The more than High Brass,	Binders' Board Cuttings
ters' or Gold Metal Sawed	Commons Comm
tal in width 2 in. to 1/2 in. to No. 28, inclusive, rc. wadvance. tal, in width 2 in to 1 in., thinner than No. 28, 2c.	Copper, heavy
ial, in width 2 in to 1 in., tainner than No. 28, 2c. w advance. tal, inwidth 1 in. to 1/2 thinner than No. 28, 3c w m dyance	Brass, light. 84 6 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
dvanc sal, in width % in. to %, inclusive, not thinner than o. 26, 2c. W B advance. sal, in width % in. to % thinner than No. 28, 5c. &	Old Lead, sollu. 13 66 13 56 Tea Lead. 356 66 354 Time 356 66 354
al, in width % in. to % thinner than No. 28, 5c. & advance. tal, ¼ in. in width and less, toc. * B advance. y of the above widths cut to particular lengths, add . * B.	Pewter No 1. 3½ 9 3½ 13 21 3 21 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
y of the above widths cut to particular lengths, add	Wrought 1701.
er cent., 12 inch, to No. 26. Market Metal. Wire.	Stove Plateper ton 14.00 @ 16.00 Grate Barsper ton 6.00
44 44 65	Paints, Oils, &c.
erman Silver Sheets over 12in. wide and weighing re than 10 Bs., \$2.00 & B. diamone 20. for each additional inch in width above 1., and 20. * \$8 on each No. thinner than Nes. 26 to	Mainta
nclusive il German Silver thinner than No. 36 is Platers, at	Black Lamp, Coach Painters. # B 200
additional. erman Silver Scrap one-half less than net price of h. Market Metal. German Silver Turnings. Filings	Black Lamp, Coach Painters. \$2 h soc Ordinary 6c
Chips, half the price of Scrap,	in ail

1.				
Dlug Chi	nana dan		good good good gright Red. Red. Brown Purple. asst'd can	
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Prices current pe	r box o	1 40 fee	£.	
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x 8 to 10 x 15	8 8.00	8 6.75	\$ 6,25	8 5-75
I X 14 to 16 X 24	8.75	8,00	7.50	7.00 8.75
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		11.50	10.00	
5 × 36 to 24 × 30	12.75			
6 x 28 to 24 x 36	13.50	12.25	11.25	
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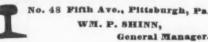
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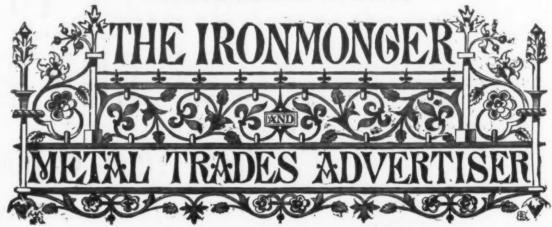
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are inserted in the Ironmonger and Metal Trades Advertiser at the subjoined rates, from which no variation can be made on any ground whatever.

Size of Page-Nine Inches Deep by Six Inches Wide.

One Advertisement of every Series of 13 Monthly, 27 Fortnightly, or 53 Weekly, will be inserted in the Ironmongers' Diary and Text Book, published toward the end of each year, and presented to every Subscriber.

	53 INSERTIONS, each net.	27 INSERTIONS, each net.	13 INSERTIONS, each net.	7 INSERTIONS, each net.	3 INSERTIONS, each net.	2 INSERTIONS, each net.	INSERTION, net.
One page. Two-thirds page. Half page. One-third page. Quarter page. One-sixth page. One-eighth page. One-sixteenth page.	13.15 9.75 7.00 5.60 3.95 3.15	Gold. \$18.75 14.10 10.25 7.50 6.00 4.25 3.40 1.90	Gold. \$20.00 15.00 11.00 8.00 6.40 4.50 3.60 2.00	Gold. \$22.50 16.90 12.40 9.00 7.25 5.10 4.10 2.25	Gold. \$25.00 18.75 13.75 10.00 8.00 5.65 4.50 2.50	Gold. \$30.00 22.50 16.50 12.00 9.60 6.75 5.40 3.00	Gold. \$35.00 26.25 19.25 14.00 11.20 7.75 6.25 3.50

SPECIAL ISSUES.

n April and October of each year there is published a Special Issue, the circulation of which is not less than Twelve Thousand (12,000)

THE IRONMONCERS' DIARY AND TEXT BOOK.

This is an annual, presented free to every Subscriber to the IRONMONGER AND METAL TRADES' ADVERTISER. It contains a large number of ruled skeleton pages for diary and other entries, and in addition much useful reference information, varied from year to year. It is handsomely bound in cloth, gilt; and as copies are used in thousands of establishments for a whole year, it is obviously a medium of exceptional value for advertisements. Sold to non-subscribers at 75 cents.

THE FOREIGN SUPPLEMENT

is published every fourth week in connection with the extensive and world-wide circulation of the Ironmonger itself. The dates of its publication in 1879 will be as follows:

JANUARY 11, FEBRUARY 8, MARCH 8, APRIL 5, MAY 3 and 31, JUNE 28, JULY 26, AUGUST 23, SEPTEMBER 20, OCTOBER 18, NOVEMBER 15.

This Supplement is published in

FIVE LEADING COMMERCIAL LANGUAGES

of the world, including English, and is sent to all the countries where they are spoken, thus placing the contents of the Ironmonger not only within reach out in the native language of eighty millions of German, forty-two millions of French, twenty-eight millions of Italian, and fifty-one millions of Spanish speaking people; or, in all, over two hundred millions of inhabitants in the principal nations where the best purchasers of manufactured goods are to be found. Advertisements are inserted in any language at the following

MODERATE TARIFF.

Size of Page-13% Inches Deep by 9% Inches Wide.

	I3 INSERTIONS, each net.	7 INSERTIONS, each net.	3 INSERTIONS, each net.		I3 INSERTIONS, each net.	7 INSERTIONS, each net	INSERTIONS each not.
One page	22.00 17.00	Gold. \$33.75 24.75 19.15 14.10	Gold. \$37.50 27.50 21.25 15.65	Quarter page One-sixth page One-eighth page One-sixteenth page	7.50 6.20	Gold. \$11.25 8.45 7.00 3.40	Gold. \$12.50 9.40 7.75 4.00

Advertisers will do well to use Illustrations freely. Where economy of space is an object, a left page illustrated and described, in one language, carriedly described in four or more languages on the opposite or right page without illustrating.

THE WHOLE FOREIGN HARDWARE TRADE,

so far as our experience of twenty years is concerned, will be covered by THE FOREIGN SUPPLEMENT at least twice a year. Thus a Price List or Advertise-other ordinary channels of communication.

B. KREISCHER & SONS,

FIRE BRICK.

BEST AND CHEAPEST. Established 1845. ffice, foot of Houston Street, East River,

NEWTON & CO.,

PALMER, NEWTON & CO., ALBANY, N. Y., Manufacturers of

FIRE BRICK

Range and Heater Linings

Cylinder Brick, &c., &c.

M. D. Valentine & Bro

FIRE BRICK **And Furnace Blocks**

Woodbridge, - - - N. J. PERTH AMBOY TERRA COTTA CO.,

A. HALL & SONS, Perth Amboy, N. J. ARCHITECTURAL TERRA COTTA

FIRE BRICK.
170 Broadway, NEW YORK.

Brooklyn Clay Retort

FIRE BRICK WORKS.

Watson Fire Brick Manufactory

JOHN R. WATSON. Perth Amboy, New Jersey. FIRE BRICK,

For Bolling Mills, Blast Furnaces. Foundries, Gas Works, Lime Kilns, Tanneries, Boiler and Grate Setting, Glass Works, &c. FIRE CLAYS, FIRE SAND, AND KAOLIN FOR SALK.

HENRY MAURER, Excelsior Fire Brick & Clay

Retort Works,

Manufacturer of FIRE BRICK, HOLLOW

BRICK AND CLAY RETORTS.

WORKS PERTI AMBOY, NEW JERSEY

Office & Depot: 418 to 429 East 23d St., N. Y

TROY FIRE BRICK WORKS JAMES OSTRANDER & SON,

FIRE BRICK, Tuycres, Tiles, Blast Furnace Blocks, etc. Miners and Dealers in Woodbridge Fire Clay and Sand, and States Island Kaolin

Established 1864. CARDNER BROTHERS

STANDARD SAVACE Fire Brick, Tile & Furnace Blocks,

Clay Gas Retorts and Retort Settings,

Miners and Shippers of Fire Clay. Office: 376 Penn Ave., Pittsburgh, Pa. Works: Mt. Savage Junction, Md., and Lockport, Pa

BORGNER & O'BRIEN,

Manufacturers of Fire Bricks. Clay Gas Retorts,

Retort Settings, Tiles, Blocks, &c., &c.

23d St., below Vine, PHILADELPHIA Eighteen years' practical experien CYRUS BORGNER. WM. J. O'BRIEN

MILLER'S BRICK PRESSES

FIRE and RED BRICK And Brickmakers' Tools in General. SAML. P. MILLER & SON, 309 South 5th St., Philadelphia.

W. & J. TIEBOUT. Manufacturers of

Brass, Galvanized & Ship Chandlery Hardware,

No. 290 Pearl Street, New York.



"DRAW CUT" BUTCHERS' MACHINES. Choppers, Hand and Power Stuffers

Lard Presses.

Lard Presses.

Box Chisels and Scrapers,

Box Chisels and Scrapers, MURRAY IRON WORKS,

DUC'S IMPROVED BUCKET.



THE STORE-HOUSE BUCKET.
(Partial straight front.)

In 19 in., 14 in., 16 in. and 17 in. Sizes.

Send for Circular.

Made of Best Charcoal Stamping Iron. No Corners to Catch. Light Running and Very Durable. The only Scientifically Constructed Elevator Bucket in the Market.

F. ROWLAND.

Sole Manufacturer, CONTINENTAL WORKS, Brooklyn, E. D., N. Y.



The MILL BUCKET. In 3% in. to 10 in.

NICHOLSON FILE Co., FILES AND RASPS.

Filers' Tools & Specialties.

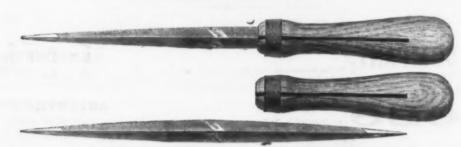
Manufactory and Offices at Providence, R. I.

The following space will be used in illustrating our specialties, the matter being changed weekly.



"DOUBLE ENDER" HAND-SAW FILE AND HANDLE.

Patented January 1st, 1878.



The above illustrations represent a new pattern of Handsaw File and handle; also the two combined as when ready for use.

We have for a long time felt that a file so universally used as the Handsaw File, could be presented to the public in a form that would more perfectly adapt it to their wants, and that, at the same time, it should be accompanied with a cheap and convenient form of handle, which could be instantly affixed.

Our Double Enders meet both these ideas, and cannot, we think, fail to commend themselves to all classes in the community who will give them a trial.

They are neatly put up in boxes containing six Double Enders and six Handles, and designated as follows:

> No. 7, Double Ender, single cut—represents two 3½ in. Taper Saw Files. No. 8, 41/2 " No. 9,

Every parcel will be labeled and every handle stamped with the words "Double Ender," which we have secured as our Trade Mark, and by which this class of goods will be known.

Its genuine merit, as a simple and useful combination, is as apparent as its economy, and combined, they render it so desirable an article for the consumer as to at once command the favorable attention of the

Bradley's Edge

Butchers' Cleavers, Butchers' Choppers, Axes and Hatchets, Grub Hoes and Mattocks, Mill Picks.

Ax Eye Bush Hooks, Socket Bush Hooks. Watt's Ship Carpenters' Tools, Carpenters, Drawing Knives, Coopers' and Turpentine Tools,

MARTIN DOSCHER. Agent, 96 Chambers Street, N. Y.



Established 1838. Bevin Bros. Mfg. Co., Easthampton, Ct Manufacturers of SLEIGH BELLS House, Tea, Hand,

Gong Bell &c. PeliMetal Kettles.

John T. Lewis & Bros No. 231 South Front St., PHILADELPHIA.



MANUFACTURERS OF Pure White Lead, Red Lead, Litharge, Orange Mineral, Linseed Oil, AND PAINTERS' COLORS

Brooklyn White Lead Co.



White Lead, Red Lead & Litharge. 89 Mulden Lane, NEW YORK. FISHER HOWE, TREASURER.

JOHN JEWETT & SONS WHITE LEAD.



LINSEED OIL. 182 Front Street, NEW YORK.



The Atlantic White Lead and Linseed Oil Co.,

Lead (Atlantic), Re Litharge & Linseed Oil. ROBERT COLGATE & CO.



DUNBAR BROS.,

Clock Springs and Small Springs BRISTOL, CONN.



PHILADELPHIA. (Corrected Weekly by Lloyd, Supplee & Walton.)	Parker's. Timed
Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.	Tinned
Anvils- 10¼c Peter Wrights, ₹ ħ, gold. 10¼c Over 250 lbs. 11 c net Wilkinson's ₹ ħ, gold. 11 c net Eagle (American). 9c ₹ ħ—dls 20 %	by case Springs Torrey Philadelphia5 in. ChatfieldNo. 1, Gem Coil No. 1, Larg No. 2, Medi No. 3, Smal
Eagle (American). A pple Parers. Reading No. 72. 10. 74. 10. 74. 10. 74. 10. 75. 10. 76. 10. 7	Stove Polish, -Gem
Peach Parers	Dixon. Onyx. Tacks, Brads, &c. Shoe Nails—
	Show Nails— 4-8 and larger, Double Pointed Taci
A Xes. Mann's Red Warrior. per doz. \$8.00 @ 8.50 net Red Indian. 8.00 @ 8.50 net Red Chieftain, beveiled. 850 @ 9.00 net Crown Prince. 8,50 @ 9.50 net	Traps. Genuine Oneida—Ne Im. Oneida—Newhou
Augers and Auger Bits. Bates' Nut Augers	Vises, -Solid Box, Tr Wrenches, -Agricul
Augers and Auger Bits. Bates' Nut Augers. Bates' Nut Augers. Cook's Augers. dis 50 @ 56.5 g Watrous' Ship Augers. Henjamin Pierce Auger Bits. Griswold Auger Bits. dis 50 @ 56.5 g Griswold Auger Bits. dis 50 @ 56.5 g Jennins' Jennins' Jennins' His 10 & 10 & 10 & 10 & 10 & 10 & 10 & 10	coes' Genuine Pat. Wro't Ba Taft's Wro't Ba
Jennings' dis 10&10 % Bonney's Pat. Hol. Augers, list \$48 ₹ dozdis 25&10 % Stearns' Pat. Hol. Augers, list \$48 ₹ dozdis 25&10 %	
Light and Commondis 25&10 %	Wire. Bright or Ann'd, No " No Coppered, o to 18 Tinned Broom Wire. Galvanized, No. 7 to
Bells. Bevin Bros. Mfg. Co. Light Hand Bellsdis 70 @ 75 % Swiss Pattern Hand Bellsdis 50 @ 50 % to % Connell's Door Bellsdis 45 % to % Gt. Western & Kentucky Cow, new listdis 50 % to %	Tinned Broom Wire. Galvanized, No. 7 to Wringers.—Novelty
Chambers' No. 1. for % bolteach, \$7.50 dis 25 % No. 2, " 36 " " 9.00 dis 25 % No. 3, " 96 " " 12.00	Wringers, Novelty Novelty No. 2. Universal No. 2\(\frac{1}{6}\). No. 2. Peerless, No. 2\(\frac{1}{6}\).
Soring Machines	PITT
Bolts.—Eastern Carriage Boltsdis 75&3 % cash Philadelphia dis 70 %	Men TERMS Note or acco
Stanley, Wrought Shutter dis 50 % Fances, - Barber'r dis 40 % 5 % Backue dis 50 % 50 % 50 % 50 % 50 % 50 % 50 % 50	rate of exchange on N cent. for cash, if remi of invoice.
American Ball. dis 50% 5 8 Butts.—Cast Fast Joint, Narrow. dis 50% 5 8 Broad dis 50% 10 %	11/4 to 4 by 3/4 to 1 Inc 41/4 to 6 by 3/4 to 1 " 13/4 to 6 by 11/4 to 11/4 " 11/4 and 11/4 by 3/4 to 3/4" 1 and 11/4 by 3/4 to 3/4" 5/6, 3/4 and 3/4 by 3/4 to 5/4"
American Ball dis 35 % Butts.—Cast Fast Joint, Narrow dis 56 % 5 % 6 % 6 % 6 % 6 % 6 % 6 % 6 % 6	14 and 1% by % to % " 1 and 1% by % to % " 96, % and % by % to %
Wrought Loose Pin. dis 55&10 5 Wrought Loose Pin. dis 55&10 5 Wrought Loose Pin. dis 55&10 5	II.
" Table Hinges and Back Flaps dis 45 % " Narrow, Fast dis 50 % " Loose Joint dis 50 %	3½ to 6 by ¼ and 5-16 1½ to 3¼ by ¼ and 5-16 1 to 13½ by ¼ and 5-16 34 to 3½ by ¼ and 5-16 % and ½ by ¼ and 5-16
III d Butis dis 75400 Parker dis 75400 Parker dis 75400 Shepard dis 65600 Luli & Porter dis 65600 Luli & Porter dis 33460 Luli & Shepard Luli & Porter dis 33460 Luli & Porter dis 34460 Luli	3 to 6 by No. 11 and 14 to 25 by No. 11 and 15 to 25 by No. 11 and 17 to 15 by No. 11 and 34 and 35 by No. 11 and 35 and 36 by No. 11 and 36 and 36 and 36 by No. 11 and 36 and 36 and 36 by No. 11 and 36 and 3
Huffer'sdis 33½ @ 33½ % 33½ % 5 hains.—German Haiter and Coildis 40 @ 40&10 % Galvanized Pump.	1 to 136 by 36 to 3-16 1 to 136 by 36 to 3-16 1 to 136 by No. 11 and 36 and 36 by 146 to 2-16
Hurter 8. Hutter 8. Hatter 8. Galvanized Pump	34 and 36 by No. 11 and 36 and 36 by 16 to 3-16. 36 and 36 by No. 11 and 36 and 36 by No. 11 and
hisels Socket Framing	% and 9-16, Nos. 13 to
asters.—Bed	96 and 9-16, Nos. 13 to 94 and 11-16, "1 31 to 94 and 12-16, "1 31 to 12 and 12-16, "1 31 to 14 to 20 and 12-16, "1 31 to 14 to 20 and 12-16, "1 13 to 14 to 20 and 12-16, "1 17 to 14 to 21 and 12-16, "1 16 to 14 to 24 to 2
	% and 11-16, 17 to 36 and 13-16, 1 17 to 1 and 156, 1 16 to
utlery.—Walten Pocket	134 to 2, " 16 to 234 to 334, " 13 to 1-10c # B extra for e indicated.
rawing Knives. Hart Mrg. Co. 8. dis 65, 5&10 % Adjustable Handle dis 20 % ry Pans.	Donn
ry Pans- Tinned	1 to 136
3urnisaed	% to 1%
Nicholson dls 35 % Disston dls 35 % Butcher \$4.50 & gold	74 to 114
Spencer	
Crown-4% in. roll. 2,62% net "-6 in. roll. 3.00 net "-8 in. roll. 5.00 net	% to 1% by 5-16 to % in Wagon Box Iron
Geneva Fluter	No. 10 to 14
Yerkes & Plumb's dis 20 % atchet's dis 33 ½ % Yerkes & Plumb dis 33 ½ % Hunt dis 25 %	No. 22 to 24 No. 25 & 26 No. 27
linges. Strap and Tdis 50&10 % Iorae Nails. Nos. 6 7 8 9 10	No. 27. No. 28. All sheets No. 18 and not less than 2-100 ext
Strap and T	3-16 to 1/2 in. thick Plow Slabs Wings
Clinton	1% by % by 5-16
Discount on Ausable and Clinton, 20%; Globe, net.	256, 3, 356 and 4 inch 156, 154, 2 and 256 " 154 inch
ocks and R 100% Branford	136 by 1 inch, for Plow 136 by 36 136 by 36
No 57 58 59 60 61 62 63 dis 50 % 10 dos	8 lbs. to the yard
anterus, Square Candle and Oil	16 4 4
Awn Mowers.—Fennsylvania. dis 30&10 % Philadelphia. dis 30&10 % Excelsior dis 30&10 %	Cast Chairs and Sp Rail, 4sc each; 26 and 314 by % and 14 Spikes 214 and 3 by %
awn and Garden Pumpa. Holland PatentList \$5.00 dis 20 %	Flat Rails.—Pu 11/4 to 2 by 1/4 to 5/4 inch 11/4 by 1/4 and 7-16 inch 11/4 by 1/4, 7-16 and 1/4 in
Inttocks. Long and Short Cutternew list 40 % Pennsylvania Patternper dox \$9.50 @ 10.00 net Lolasses Gates.	Tunista Wall Dods
Enterprise Mfg. Co.'s Measuring Faucetsdis 20 % Stebbins' Gates	Guard Iron, 74x44x56, 1
Long and case Permay Per	Dropper Bars
Woodruff	1st quality (A)
Stuffers	Nos. 14 to 20
Sciotodis 45 % to % cash Auburndls 35 % in 10 days.	Roofing Iron, Galvanized Common No. 208c net of No. 21 & 228.40
lane Irons.—Ohio Tool Codis 20&10 % Butcher'sgoid £, \$5.50	No. 21 & 228.40
Inne I reas.	Carnegle Beam
unips.—Bleatord	Deck Beams, 7 to cir.
Part	Channel Bars, 14 to ro
English Pattern	Want Sided ave to sky
	Unequal Sided, 2x15/4 to 4x Unequal Sided, 2x15/t Square Root Angles, 2 Star Iron, 15/x15/t to 4x Sash Iron, 15/x75/2-10.
Iry Squares, Staniey	Star Iron, 11/21/4 to 42 Sash Iron, 11/27/23-10. Miscellaneous Shanes. Special prices for la
LDS	Brad
Sharpened doz 87.25 net a ws.—Disston's Hand, Panel and Rip dis 20 % Disston's Circular dis 20 % Cross-Cut No. 2, Plain Tooth. % ft 35c net	rod to 6od
Disston's Circular	Barrel.
Rowlanddis 50 %	Finishing.
Oliver Ames & Sons, new list	174 excesses contract
Oliver Ames & Sons, new list. Cliss Add Irons, -4 to 10 bs. Ph 3 c Mrs. Potts Patent. Clis 35/s cone Arkansas Oli Stone Whathansa Clistone. Ph 8 200 net Washita Extra. Ph 360 No. 1 200 dts	tod to 30d
	Casing and Box.
	Casing and Box. 10d to 30d. 8d. Fine Blued. 4d. 7s in. Clinch—All sizes.
Company Comp	Casing and Box. tod to 3od. 8d. Fine Blued. 4d

Round Head Brass....

	r	7
10	Species	of
et et	by case. dis 20 % Springs.—Forrey. \$\frac{1}{2}\$ dos \$\frac{1}{2}\$ so net Philadelphis\$\frac{1}{2}\$ in., \$\frac{1}{2}\$,co \$\frac{1}{2}\$ dos \$\frac{1}{2}\$ so net Gen Coil No. 1, \$\frac{1}{2}\$,so; \$\frac{1}{2}\$ \$\frac{1}{2}\$,so; \$\frac{1}{2}\$ \$\frac{1}	of da all
et et et et	Stocks and Dies	Si Ki % 5-1
et et et	Shoe Nalis— 4-8 and larger, oc; 3½-8, 9½-6 ₩ B. New list, net Double Pointed Tacks. Traps, Genuine Oneida—Newhouse	30 "] "So
RECENTA	Wrenches, - Agricultural	Ci Re Fo He
N WEEK	Philada. Tool Co., Duplex	Cu Co Pl Ho
RHW W	Galvanized, No. 7 to 18. Market List, dis 30 % Wringers.—Novelty No. 10. \$\Phi\$ dos \$60.00 net Novelty No. 2. \$\phi\$ 65.00 net Universal No. 256. \$\phi\$ 65.00 net No. 256. \$\	Fu Ho Gu Sp Sa
NNNN	PITTSBURGH.	Pi
sh sh	Merchant Iron. Terms.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 per cent. for cash, if remitted within 10 days from date	Pi
MMMM	of invoice.	6 8
MANNAN	114 to 4 by 36 to 1 Inch. 3.00 414 to 6 by 36 to 1 " 3.10 194 to 6 by 154 to 14" 3.40 114 and 136 by 36 to 34" 3.10 114 and 136 by 36 to 34" 3.10 115 and 136 by 36 to 34" 3.20 116 and 13	15 24 Ju
N MANAN	Heavy Bands. 314 to 6 by 14 and 5-16 inch	TI
XXXX Xet	96 and 96 by 96 and 4-10 " 4.60 3 to 6 by 16 to 3-16 3.30 3 to 6 by No. 11 and No. 12. 3.50 16 to 256 by 96 to 3-16 3.50 16 to 256 by 96 to 3-16 3.50 16 to 176 by No. 11 and No. 12. 3.70 1 to 176 by No. 11 and No. 12. 3.70 1 to 176 by No. 11 and No. 12. 3.50 3 and 16 by No. 12 and No. 13. 4.60 4 and 16 by 16 to 3-16 4.60 5 and 16 by 16 to 3-16 4.60	Re Oil Li Di
AN AN DAN	56 and 9-16, Nos. 13 to 16. 5-7e 56 and 11-16. 13 to 16. 5-2e 76 and 12-16. 13 to 16. 4-7e 7 and 156. 13 to 15. 4-3e 1 and 166. 13 to 15. 4-3e 1 4 to 2. 13 to 15. 3 9e 5 and 9-16. 17 to 20. 5.	frobe
ah & u-	\$\frac{3}{2}\$ and 13-16, " 17 to 20	6 11 18 15 26 26 26
% .00 % .00 8	Rounds and Squares, 3.20 \$6 to 9.16 3.20 \$2 to 29 3.30 \$6 to 9.16 3.30 \$2 to 3.30 \$3.20 \$6 to 9.16 3.30 \$3.5	30 34 30 6
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et et et et	Oval Iron Oval	30 30 34 30
W W W W W W W W W W W W W W W W W W W	No. 18 to 17	H
23 18 17 18 et	3-16 to 36 in. thick	1
sh sh	2½ 3, 3½ and 4 inch	
% .00	8 lbs. to the yard3.40 20 lbs. to the yard3.30 12 11 12 13 14 15 15 15 15 15 15 15	Bi
et www. w	Cast Chairs and Spilee Joints for 12, 16 and 20 lb. Rail, 45c each; 26 and 40 lb. Rail, 55c each. 3/6 by \$6 and 3/6 Spikes for 20 and 20 lb. Rail. 4.5c 2/6 and 3 by \$6	pl an th sp wi
of ot	Flat Rails.—Punched and Countersunk. 3-50	ch
танинини	Juniata Nail Rods	Bu
sh www sh	Galvanted Iron—American. Nos. 14 to 20	4
MM SHM	Roofing Iron, Corrugated or Crimped. Galvanized Common. No. 20	
NO SHARKE	Beams and Channels Solid Wrought Iron Beams, 3 to 10\(\frac{1}{2} \) in. \(1	82
67		M.
NAM t	I III. XI III. 10 5 III.3 III. 4 III. 4 III. 4 III. 5 III.3 III. 4 III. 5 III.3 III. 6	,
et et et et	tod to 6od	
% % 30 % et	36	/
is % et et	Casing and Box. 6d. 4.65 10d to 30d. 4.15 8d. 4.10 Fine Blued. 3d. 5.90 4d. 5.15 Lining. 7.15 7.10 7.00 8d. 10.00	C

I	HEIRO	N	· _£	1	3 E	C
8	Tobacco. 8d	to 7d.			4.15	-
KKKKK	Tobacco. Each half keg roc TERMS.—Note or acceptance a of 2 per cent. for casa, if remit date of invoice. An abateme allowed upon orders of 200 keg	ents ents to ted with the of	ys; or hin to to cer	a disc days its pe	from r keg	
力は元						•
8	Square, Flat and Octa % to 2 in	and 4	5 in	in	190	
X X	Single and Double Shear Natier Knife, Tup, Die, Mill Pick, Drill Machinery Steel	-Ordi	nary s	izes	12C	A
1 1	% to 2 in. Machinery Steel 5-16 and 2½ to 3 in 60 14 and 3½ to 4 in 00 Cast Spring Steel. 1 to 4% to ½ in 60 1 to 4% to ½ in 60	and 4 and 5 in to 3x5	32 to	in in	100 130 180 . 70	
×	Agricultural Solid Cast Steel Plow, 4 to 16 by	Steels. 7 3-16 to	5-32 to	3-10 ln	80 6360	
NX X WI	Solid Cast Steel Plow, 4 to 16 b. "Iron Center Plow," 4 to 16x3-16 "Iron Back Plow," 4 to 16x3-16 Soft Steel Center Plow, 4 to 16x3-16 Landside and Cultivator, C. S., Circular Plow Coulters, 5-32 to Reaper and Scythe.	to % ir to % ir t3-16 to , % in. % in. t	in 36 in thick hick.		8 c 8 c 8 c 7 6 c 7 6 c]
XXXXX	Heaper and Scytne. Fork and Hoe. Horse Rake Teeth, tol ength. Finger Bar. Cutter Bars, C. S. Cornstalk Cutter beveled to be Planters' Hoe, C. S. Hoe, C. S.	ength.	*******		6½0 7 0 7 0 7 0 7 0 7 0	1
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XXX	German, 10 to 16 g 7c Co 11 17 to 20 g10c Be Common C'st, 10 to 16 g. ge " Rolls and Ca	st Cast	17 to	16 g 20 g	13C	
00000	Furnace, Floor and Straighten Housings and Castings not oth Guide Plates Spindles and coupling boxes	ing Pla	ites	fled	.3 c .314c .314c .314c	P
e	" small size. Pipe Mill Castings	lbs			.3940 .4 0 .3 0	(
tre	Furnace, Floor and Straighten Housings and Castings not oth Guide Plates Spindles and coupling boxes. Sand Rolls and Plaions, large a "mail size. Pipe Mill Castings and er so Spur and Bevel Wheels, large. "over 30 inches "over 30 inches "engine Castings, light "Chilled Ro	*******		*******	.4 C .440 .420 .420	
000	6 to 7 in. diam., 7 to 20 in. lor 8 to 15 in. 8 to 40 in. 15 to 24 in. 16 to 72 in. 16 to 72 in. 16 to 72 in. 17 to 108 in. 16 to 72 in. 18 in.	Ig	*****		.5 C	
000	Horse Shoes, Etc Juniata Horse Shees Mule "Roadster" pattern. Steel Tee Calks	-in 100	keg ic	ots. or keg	\$3.50 4.50	
00000	Thistiewood & Co.'s Self-Sharpe Shoes Thistlewood & Co.'s Self-Sharpe Shoes	ening 8	now	rse er keg	\$5.24	
cc	Toe Calks	ed Le	ad.	per	16. 8c	
000	Red Lead	gs, 5560 Bbs	e; in t	arrels	8140 5140	
000	Orange Mineral	bs., 756	AR 500	1bs., 3	8.6%(c c ad-	
cc	Terms: Note at sixty days, o from date of invoice, a discourbe allowed, but not otherwise. Window G	t of i	% per	cent.	will	
0 0	Per Box of 50 Feet.—	Discou	nt 70 %		_	
000	Size.	AA.	Α.	В.	C.	(
0000	6 x 8 to 10 x 15	\$7.40 8.50 10.75 12.25	\$6.75 7-75 9-75 10-75	\$6.25 7.25 8.75 9.00	85.75 0.50 7.75	1
0	15 X 36 to 24 X 36	13.00 14.50 15.00	11.50 13.25 14.00	9-75 10.75 11.25		
0000	30 x 52 to 30 x 54. 30 x 55 to 34 x 56. 34 x 58 to 34 x 56. 36 x 50 to 40 x 56. Double Strength. 6 x 8 to 10 x 15.					
0	Double Strength. 6 x 8 to 10 x 15	13.75	11.00 12.50 15.75	10.00 11.75 14.00	9.25	
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000	6 x 8 to 10 x 15. 11 x 14 to 10 x 24. 18 x 2 to 10 x 24. 18 x 2 to 10 x 29. 15 x 26 to 24 x 39. 26 x 26 to 24 x 39. 26 x 36 to 24 x 39. 20 x 36 to 30 x 44. 20 x 36 to 34 x 56. 34 x 36 to 34 x 56. 34 x 36 to 34 x 56.	25.75 27.75 29.25 33.25	22,50 23,25 25,00 27,75 30,00	19.25 21.75 24.00		-
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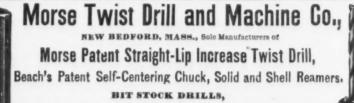
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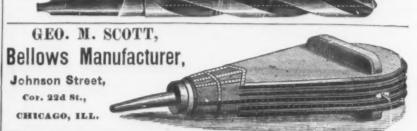


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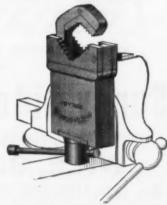
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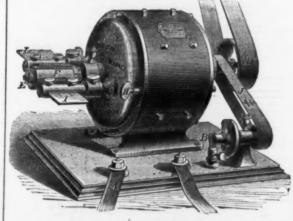
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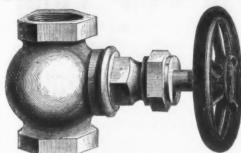
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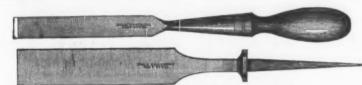
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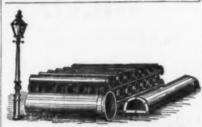
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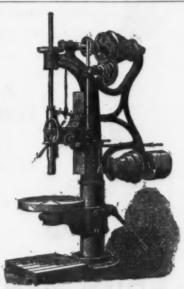
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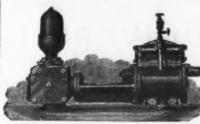
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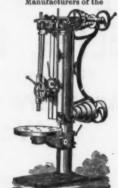
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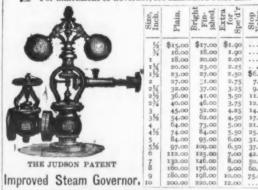
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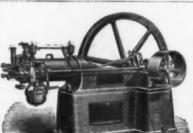
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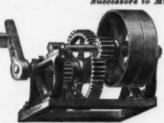
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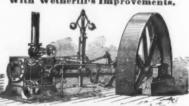
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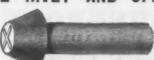
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